

Scale

Volume 1 Issue 6 June 1995 £1.95

Aviation Modeller

Sea Harrier F/A 2

Gary Madgwick converts the ESCI Sea Harrier FRS.1 into the Fleet Air Arm's newest addition and provides 1:72nd scale plans of the conversion

SOUTHERN EXPO
FULL REPORT



Fokker D.VII

Richard Franks lifts the lid and peels back the fabric on the Royal Air Force Museum's Fokker D.VII



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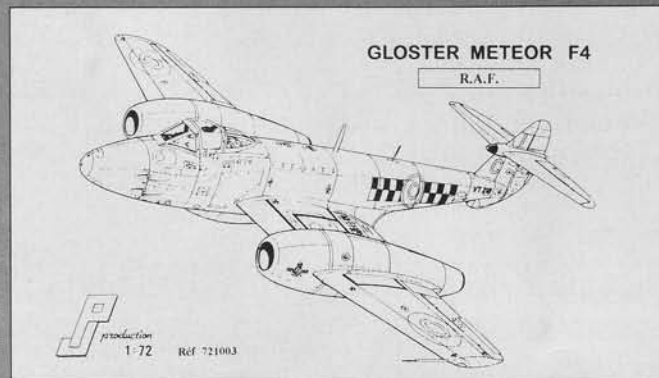
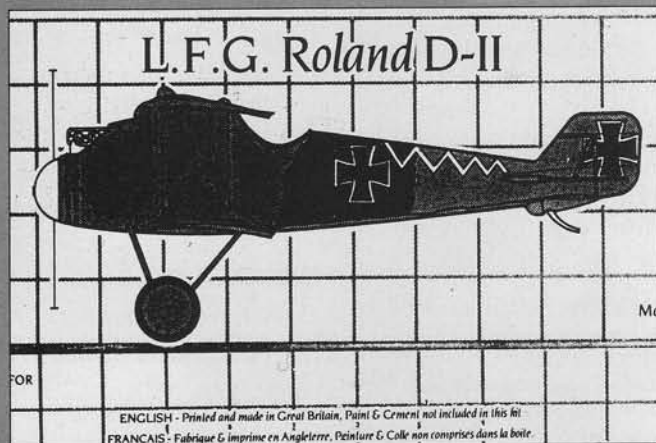


TECHNICAL DATA

Kit: Fokker DXXI
Manufacturer: Classic Airframes
Scale: 1:48th
Price: £18.95
Type: Limited run injection moulded with etched brass, metal and resin
Kit No: 94-4012700
Parts: plastic: 26; resin: 12; metal: 3; vacuformed: 2; etched: 100
Other: Acetate film and steel tubing
Decal options: 4: 2 x Dutch, 2x Danish
Distributor: Four Plus UK, 29 Westwood Gardens, Hadleigh, Benfleet, Essex SS7 2SH
Telephone: (01702) 559308

TECHNICAL DATA

Kit: LFG Roland D-II
Manufacturer: Pegasus
Scale: 1:72nd
Price: £9.99
Type: Limited run injection moulded with white metal parts
Kit No: 1025
Parts: plastic: 14; white metal: 6
Other: Strut material
Decal options: 1
Distributor: Pegasus, Lancaster House, PO Box 50, Whitstable, Kent CT5 2UX
Telephone: (01227) 277569



TECHNICAL DATA

Kit: Gloster Meteor F4
Manufacturer: PJ Productions
Scale: 1:72nd
Price: £23.00
Type: Resin and etched brass
Kit No: 721003
Parts: resin: 41; vacuformed: 1 (clear); etched: 13
Decal options: 1: VT219, No.63 Squadron, RAF 1950
Distributor: Avia Imports, 56a Priory Road, Peterborough, Cambs PE3 6EE
Telephone: (01733) 349072

TECHNICAL DATA

Kit: Blackburn B.48 Firecrest
Manufacturer: Magna Models
Scale: 1:72nd
Price: £17.75
Type: Resin and white metal
Kit No: 2372
Parts: resin: 8; white metal: 17; vacuformed: 2 (clear)
Decal options: None
Distributor: Magna Models, 4 Brian Close, Sandford, Wareham, Dorset BH20 7BJ
Telephone: (01929) 553518

MAGNA MODELS

KIT No 2372

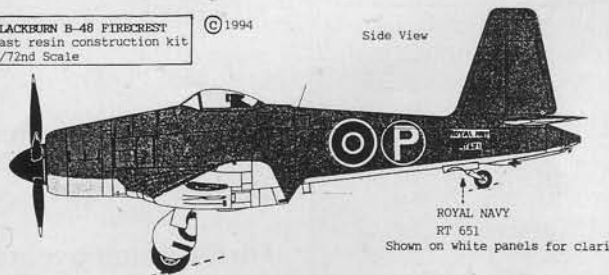
Page 1

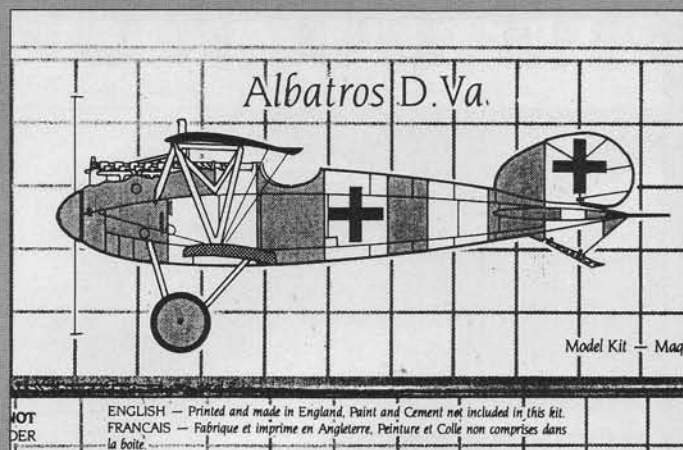
WARNING! RESIN IS TOXIC, TAKE CARE WHEN CUTTING OR SANDING NOT TO INHALE DUST.

BLACKBURN B-48 FIRECREST
 Cast resin construction kit
 1/72nd Scale

© 1994

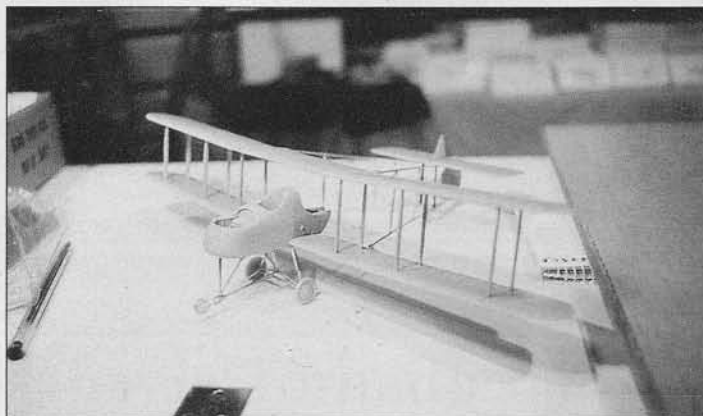
Side View





TECHNICAL DATA

Kit: Albatros D.Va
 Manufacturer: Pegasus
 Scale: 1:72nd
 Price: £9.99
 Type: Limited run injection moulded with white metal parts
 Kit No: 1024
 Parts: plastic: 13; white metal: 14
 Other: Strut material
 Decal options: 1
 Distributor: Pegasus, Lancaster House, PO Box 50, Whitstable, Kent CT5 2UX
 Telephone: (01227) 277569



New, but not yet on sale at Southern Expo was the Aeroclub Models 1:48th scale FE.2b.



Arba's He 111 Zwilling conversion for the 1:48th scale Revell Heinkel He 111 was unveiled at the Southern Expo.



TECHNICAL DATA

Kit: Seafire Mk.XV ('A' frame hook)
 Manufacturer: Ventura
 Scale: 1:72nd
 Price: £9.99
 Type: Limited run injection moulded plastic with white metal and vacuform canopies
 Kit No: V0512
 Parts: plastic: 27; metal: 3 (plus metal mesh); vacuformed: 2
 Decal options: 3
 Distributor: Mary-L Models, 100 Home Orchards, Cotswold Mews, Yate, Bristol BS17 5XC
 Telephone: (01454) 880396

TECHNICAL DATA

Kit: Yakovlev Yak-15
 Manufacturer: Matchbox
 Scale: 1:72nd
 Price: £4.50
 Type: Injection moulded plastic
 Kit No: 40143
 Parts: plastic: 19; clear: 1
 Decal options: 1
 Distributor: Revell (GB) Ltd, Foster House, Maxwell Road, Borehamwood, Herts WD6 1JB
 Telephone: 0181-207 1213



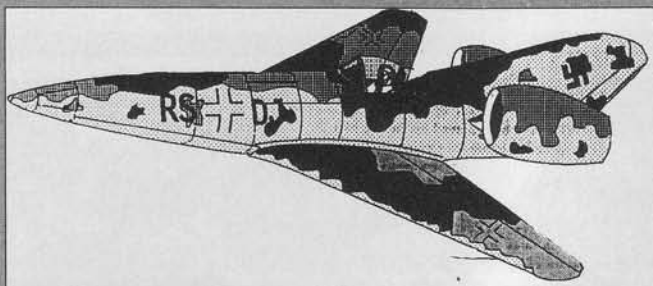
TECHNICAL DATA

Kit: Focke Wulf Ta 283
 Manufacturer: Toad Resin
 Scale: 1:72nd
 Price: £TBA
 Type: Resin and etched brass
 Kit No: N/A
 Parts: resin: 3; white metal: 8; vacuformed: 1 (clear)
 Decal options: None
 Distributor: Toad Resin, 152 Godstone Road, Caterham, Surrey
 CR3 6RB
 Telephone: N/A



TECHNICAL DATA

Kit: de Havilland Hornet F3
 Manufacturer: Arba
 Scale: 1:48th
 Price: £25.00
 Type: Resin, white metal and vacuformed plastic
 Kit No: CK055
 Parts: resin: 10; metal: 23; vacuformed: 2
 Distributor: Arba Products, 166 Bishopscote Road, Luton LU3 1PE



Revell Kaman SH-2F SEASPRITE



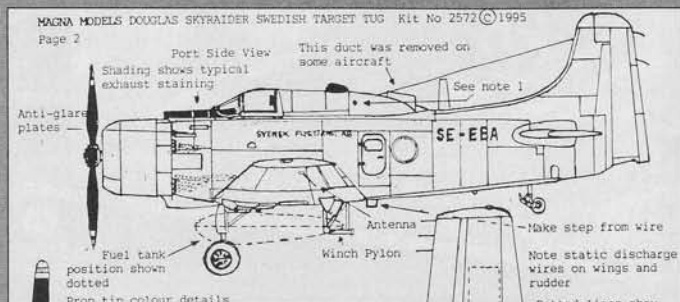
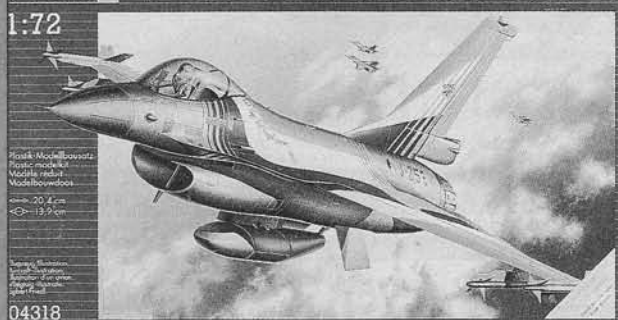
TECHNICAL DATA

Kit: Kaman SH-2F Seasprite
 Manufacturer: Revell
 Scale: 1:48th
 Price: £10.50
 Type: Injection moulded plastic
 Kit No: 04429
 Parts: plastic: 109; clear: 9
 Decal options: 2
 Distributor: Revell (GB) Ltd, Foster House, Maxwell Road,
 Borehamwood, Herts WD6 1JB
 Telephone: 0181-207 1213

TECHNICAL DATA

Kit: GD F-16 'Dutch Special'
 Manufacturer: Revell
 Scale: 1:72nd
 Price: £8.95
 Type: Injection moulded plastic
 Kit No: 04318
 Parts: plastic: 145; clear: 1
 Decal options: 1
 Distributor: Revell (GB) Ltd, Foster House, Maxwell Road, Borehamwood,
 Herts WD6 1JB
 Telephone: 0181-207 1213

Revell F-16 DUTCH SPECIAL



TECHNICAL DATA

Kit: Douglas Skyraider, Swedish Target Tug
 Manufacturer: Magna Models
 Scale: 1:72nd
 Price: £19.95
 Type: Resin and white metal
 Kit No: 2572
 Parts: resin: 11; white metal: 23; vacuform: 10 (clear)
 Decal options: None
 Distributor: Magna Models, 4 Brian Close, Sandford, Wareham,
 Dorset BH20 7BJ
 Telephone: (01929) 553518

New on the shelf . . .



Panavia Tornado IDS

As a concept, the Panavia Tornado has been around since 1969 and surely needs no introduction. This kit should also need no preview as it is in fact a re-boxing and re-packaging of the Airfix kit. Following on from the RAF GR.1 and F.3 versions, this IDS (Interdictor/Strike) variant offered by Heller deals with the type as operated by Germany and Italy.

Moulded in light grey plastic, the kit has raised panel lines and relatively good detail. Some parts are bagged and others are loose in the large box, which I believe is a very bad idea. In the review sample, a direct result of this practice was a marked main canopy. There are various pieces which do not get used and can be

consigned to the spares box and the option of German or Italian weapons fit may lead to a few more pieces going into store.

Cockpit detail is good and side console and main instrument panels are supplied as decals. I trimmed mine close before application and found the image started to break up on one side once they were immersed in water. The taileron connector rod, part number 23, is not very strong and it is probably best to cement the tail planes in place as it will probably snap during the rest of assembly. The gun ports, part numbers 91 and 92, do not fit very well – neither do the blade aerial hole plugs (parts 242 to 245). The worst task was fitting the intake

trunks, parts 33 to 36 shown in stages 9 and 10. The locating lug at the rear of parts 33 and 35 does not match the notches in the lower fuselage half (part number 90). I removed these steps in parts 33 and 35 as they only hinder you and are not visible once the intake is in place. Now, having said 'in place' I should point out that if the top edge is lined up flush the lower edge will have a visible step in excess of 80 thou! If you build the airbrakes (part numbers 100 and 99) in the closed position you will find they are a poor fit. The undercarriage doors, parts 70 and 72, have a very vague butt joint with no locating tabs, etc. which is poor and if the refuelling probe is closed the rear portion, part 123, has to be cut to fit in. The Phimat pod is good, but the decal for the rear face is too small. Other underwing options include two drop tanks, Cerberus pod, two Kormoran AS missiles and two AIM-9L Sidewinders.

The decal sheet is huge, nearly as big as the box at 15 x 8 inches and contains all the stencils as well as national insignia etc. I went for the German Marineflieger version – only as I wanted to fit the Kormoran missiles and did not

fancy reproducing the aluminium undersurface of the Italian version. The aircraft is finished in Humbrol 112 (tarmac), 79 (blue grey) and 86 (light olive) overall, with panels on the tail and wings in 27 (slate grey). All my colours were applied with an airbrush and it is a good idea to leave off the afterburner cans (part numbers 45 and 46) until last. This will allow a loop of wire to be inserted up the fuselage and allow you to hold the model whilst applying the wrap-around camouflage scheme.

The decals, however good they looked on the sheet, were a real disappointment. Although you could not see it, once applied each image was 'ghosted' by a white version behind. The Luftwaffe insignia were out of register, as were the unit codes and all the smaller stencils had the white base showing around the edges. Needless to say I spent a few hours cutting, applying and re-trimming the main markings and the rest went in the bin. As my canopy had been marked I polished it before it was finally secured and the last job was to use some Xtracolor X503 (exhaust) and spray it up the fins to simulate the soot from the reverse thrust buckets.

Well, it looked good in the box, but the fit made it a frustrating job and those decals were the final straw. I would not recommend this kit to any but the avid or those who intend to collect the kit and never put themselves through the stress of making it. Younger modellers and the less experienced would at best be disappointed and at worst be totally foxed by it, whilst experienced modellers would invest a lot of time and effort for a mediocre end result. The whole series of Airfix/Heller Tornados have a very rushed feel to them, as if they were pushed into production too quickly.

Overall not a kit I liked and therefore one I feel I can recommend.

Richard Franks

TECHNICAL DATA

Manufacturer: Heller

Scale: 1:48th

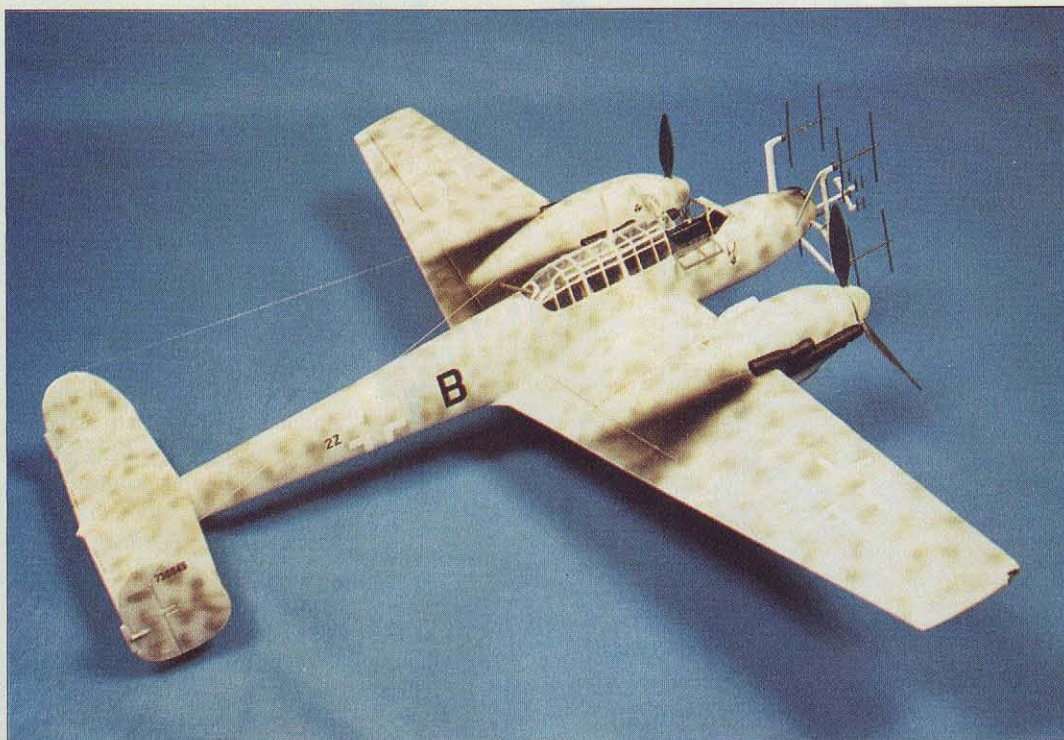
Price: £15.75

Type: Injection moulded

Kit No: 80430

Parts: plastic: 116; Clear: 2

Decal options: 2. (German): Marineflieger Geschwader 2, Eggebeck 1993; (Italian): 154 Gruppo, 6 Stormo, Ghedi, Italian AF 1987



Messerschmitt Bf 110G-2/3 with 37mm cannon

The name of Mauve may not have been very familiar to many, but since the earthquakes which hit Japan earlier this year, everyone has become aware of them, as they were based at one of the worst hit areas.

Many readers may be aware of the company's previous Bf 110G-4 and Bf 110G-2/3 kits in 1:48th scale which were based on, and included, the Fujimi Bf 110C/D kit. This was later followed by an entirely new kit of the Lippisch P-13A ram-jet fighter project. One of the more recent offerings from this company is another version of the Bf 110, this time a G variant fitted with a 37 mm cannon.

As I said at the start, the basis of this kit is the Fujimi Bf 110C/D and this is included in the overall package. As well as the Fujimi mouldings you get two new sprues of grey plastic parts, a new rear cockpit canopy section, two frets of etched stainless steel pieces and a couple of bags of white metal

parts. The whole package is finished off with two decal sheets, the instructions and supplement and a couple of pieces of brass rod.

Construction of the kit is simple, but it does include the use of dissimilar materials such as etched steel and white metal, so a cyanoacrylate cement is a necessity. The cockpit gets most of the detail and on top of the injection moulded plastic parts the kit also includes a new pilot's seat, two wicker seats for the rear area and a rev gun sight, all of which are cast in white metal. The radio equipment for the central bulkhead is made of a plastic unit, onto which goes the etched steel faces of each radio component. The final touches to this area are a full set of etched seat belts and the side consoles and associated levers in the pilot's area. All of these pieces are excellently created and careful construction and painting will really pay dividends here. My only word

of warning concerns the levers for the forward cockpit area (parts PB12, PB3 and PB2): these are very fragile and small. Only remove them one at a time from the fret and ensure they are firmly cemented in position.

The tailwheel, which is integrally moulded on the Fujimi kit, has to be cut off so that the larger unit common to the G series can be fitted. The MG81Z in the rear cockpit is excellent and even includes a set of etched sights! The G style nose is supplied as an injection moulded component and unfortunately its fit is not very good. Once secured as best you can you will still find a slight lip all the way around it. If you are making the G-3 with the 37 mm cannon do not fit any nose armament and fill in the gun troughs on the underside of the nose – also use the head armour shown in stage 4 instead of that shown in stage 3. The engines are all new and they consist of injected main assemblies with white metal propeller blades and bulges for the upper decking. The blades, however, don't look correct in profile for the G series: they are not broad enough. The G style intake on the inner top leading edge of the starboard wing is also supplied as white metal and the kit even includes the intake filter for the port air intake.

Final additions include the bigger style tailplane end plates of the G series. Stage 7 in the instructions can be ignored as this deals with the ETC carrier and MG151 pack for the G-2 version. This stage is therefore replaced with the large ventral cupola for the 37 mm cannon, along with its barrel (brass tube) and flame damper (white metal). The model is completed with the addition of underwing drop tanks.

As I said earlier, the kit comes with two decal sheets, one of which is very large and in fact comes with all the colour options for the earlier G-2/3 kit. The other, smaller, version is peculiar to the G-3 with 37 mm cannon. Two schemes are given for the cannon armed variant, these are 'M8+AM' and 'M8+KM' both operated by 4./ZG76. The overall colour scheme for both is the standard RLM 74/75/76 version. I went for 'AM' and used the excellent enamels from the AeroMaster range, as this certainly speeded everything up. The colours used were RLM 74 Graugrün (9025), RLM 75 Grauviolett (9026) and RLM 76 Lichtblau (9027). The cockpit interior is RLM 66 Schwartzgrau (9022) and the undercarriage areas are RLM 02 Grau (9020). The wheel centres are gloss black and the tyres are very dark grey ('Tyre Black' 9010). All of these colours were applied with an airbrush and the model was then given an overall coat of gloss varnish before the decals were applied. The decals given in the kit are excellent, all I would say is *do not* use AeroMaster's AERO Sol decal solvent, as it will wrinkle them up like an old prune! I used AERO Sol setting solution in conjunction with MICRO Sol decal solvent and found this an excellent combination. As well as the national and squadron markings all the stencilling is supplied as decals, and they all take quite a while to apply.

The overall model is quite superb and one I am very pleased to have made. The time involved in making it was quite high, but the overall finished product is excellent. I should point out that you don't

TECHNICAL DATA

Manufacturer: Mauve

Scale: 1:48th

Price: £TBA

Type: Injection moulded with white metal and etched steel

Kit No: 00080

Parts: plastic: 38 new (plus Fujimi kit); metal: 27; etched steel: 55

Decal options: See text

SEPECAT Jaguar A – special markings

Originally released during the 1980s, Hasegawa's SEPECAT Jaguar kit has recently made a welcome appearance with the addition of decals which represent a French Air Force special colour scheme. This is in line with Hasegawa's now well-established practice of re-releasing some of its existing kits with new colour scheme options.

The Jaguar kit itself represents the single-seat model of this successful Anglo-French strike and attack aircraft. It therefore has alternative nose sections and vertical tail components which allow either the British-operated or French-operated single-seater to be modelled; the single-seat export Jaguar International can also be made from this kit. Overall this

just get the bits for a G-2/3 kit here – in fact all the G-4 aerials and G-2/3 underwing carriers, plus twin MG151 gunpack, are included. Couple this with the fact that all the information on the G-2/3 is included along with the decals and you are getting quite a bit in one box.

This kit is excellent. It is better than any conversion you could buy. However the price of this version is bound to be very high: the last G-2/3 version was £49.95 and I cannot see this kit being less than £50.00, which is a hell of a lot of money. The Yen is strong against most currencies at present so the price will, I suspect, remain very high. All I can say is that this kit will make up into an excellent model of any G-2/3 version and the inclusion of the 37 mm cannon is an added incentive. You really have nothing more to add to this kit, so if you want the best and don't mind paying for it, this is it!

My thanks to Mauve for the opportunity to make such a lovely kit.

Richard Franks



is a very competent model, with fine engraved panel lines, sharp trailing edges, and reasonably good detail all around.

However, although there is some cockpit detail and decals included for the instrument panel/console, as with most Hasegawa kits the interior can be considerably improved with the addition of more detail – for example, by using the Jaguar cockpit detail set from Airwaves (set number AC72-39), available direct from ED Models of Solihull, or from many good model shops. A better, replacement ejector seat from Aeroclub Models is also a good idea, this being either set number EJ002 for the French Jaguar A or EJ038 for the RAF operated Jaguar. It's particularly useful (although not of course obligatory) to superdetail the cockpit area, as Hasegawa provide the model's cockpit cover in two pieces which allows you to mount the canopy in the open position if desired.

Underwing/underfuselage ordnance included by Hasegawa includes bombs, rocket pods, and Matra Magic air-to-air missiles. A rather heavily moulded entrance ladder is also included. The kit can be built from the box with a minimum of fuss, and with a commendably small amount of filler needed at the major joints – although care is required in particular when aligning the cockpit/forward fuselage

TECHNICAL DATA

Manufacturer: Hasegawa

Scale: 1:72nd

Price: £8.99 approx

Type: Injection moulded

Kit No: N/A

assembly to the rest of the model. Decals normally provided in the kit include RAF and French Air Force options, plus Jaguar International demonstrator markings.

However, the recent re-release of the kit has seen the inclusion, in addition to the above decal sheet, of the option of the very colourful French Air Force machine from EC.3/7 'Languedoc', which was recently painted to celebrate the 50,000 flying hours achieved by this unit and its constituent escadrilles. EC.3/7 has been a long-time user of the Jaguar, and for some time has comprised two constituent escadrilles, SPA 38 and 3C1. Although SPA 38 has a long history in the French Air Force, 3C1 is a slightly unusual constituent escadrille for a French Air Force squadron as it is a former French *naval* air arm fighter unit – this escadrille's colourful shark markings could be found, for example, during the pre-war years prominently adorning the fuselage sides of its aircraft, including Nieuport-Delage 62C fighters, at the naval air base of Hyères in southern

France. The special decal sheet included with this re-release of the Jaguar kit faithfully reproduces this shark marking as applied to the specially painted Jaguar. The thistle marking of SPA 38 which was also prominently displayed by the special Jaguar is also featured on the Jaguar kit's extensive and generally well printed special decal sheet. All the relevant large badges, special lettering, and fuselage striping, as well as national insignia, and some stencil markings, are featured on this sheet, allowing the model to be completed in this attractive colour scheme.

The usual kit's instructions are added to in this re-release by an extra page which illustrates the special colour scheme of this particular Jaguar, the decal placements, etc. Paint references are also given, but as is usual with Hasegawa kits, these are obscure Mr Colour and Gunze Sangyo paint references. Why Hasegawa cannot quote Humbrol and/or Xtracolor paint numbers, especially when one remembers that these famous brands are

known and used virtually worldwide, remains one of life's great mysteries.

The review model was painted in the relevant Xtracolor paints (available from Hannants of Lowestoft, or other leading model shops), these being X375 (French dark green), X376 (French dark grey), with X378 used for the undersides.

Some care should be given to the placement and application of the various special decals, especially the big and colourful shield on the aircraft's top wing/spine, the middle portion of which needs some help to conform to the complex contours. The use of Microsol decal softening solution is very useful at times like these. The blue/white/red vertical tail

markings are best applied after first cutting off the small moulded fin strake on each side, which should then be replaced when the markings have been applied with a similar shaped item from thin plastic card. To finish, the model was airbrushed overall with a coat of Xtracolor satin varnish.

In total, a very attractive model is the result, which

nicely captures the sleek lines of the single-seat Jaguar. It is nice to see Hasegawa taking the trouble to research special markings and brightening up their existing kits in this way. The kit retails at the time of writing for approximately £8.99. Our grateful thanks go to the Aviation Hobby Shop for our review sample.

Malcolm V.Lowe/Phil Jones



Grumman TBM-3 Avenger

The Avenger was conceived by the Grumman design staff under the leadership of W.T. Schwendler and had a brilliant career during World War 2. The Fleet Air Arm (FAA) also wanted the type, as the Barracuda did not have the power, armament or weapon bay facilities. Originally the FAA intended to adopt the name Tarpon for the TBM but in the end also adopted the name used by the US Navy. The type went on for many years being modified to do numerous tasks including ASW, COD and ECM duties. The last type was the TBM-3N and this, together with several rebuilt versions, served on until about 1960.

This kit from Monogram was actually designed whilst some TBMs were still in service! The original was released in 1958 and, I am afraid, it shows. In the era from which it originates many manufacturers included

working features. This kit is no exception as it used to have a positionable main undercarriage, tail wheel and arrestor hook, folding wings, rotating turret and a working bomb bay complete with torpedo. This re-issue, thankfully, sees many of these features removed. The turret still rotates and the undercarriage does work along with the tailwheel and arrestor hook, but all the rest has gone.

The kit is moulded in dark blue. The moulding is ... how should I say this ... old and basic! The aircraft is covered in rivets, à la Airfix, and these need to be knocked down with wet'n'dry (or a rotary sander) before you start assembly.

My first impression was of a basic but sound model – this was all to change. I appreciate the age of the toolings but a section of the leading edge of the inboard upper wing panel (part number 2) was not

moulded and neither was the first five millimetres of the bomb bay door (part 37). One expects to come across these short shots from limited-run producers, but not Monogram/Revell. Construction ranges from almost snap-tight to absolutely appalling. Although it is a very harsh judgement, of all the kits I have made in 22 years, this ranks as one of the worst. You should note that to make the TBM-3E version, the upper cannon trough in the nose has to be filled and this is illustrated in the instructions.

The colours for each decal option are given as mixes of Revell paints. The FAA example is sky (Xtracolor X7) underneath with extra dark sea grey (X) and dark sea grey (X4) on top. The Dutch example is far easier, being sea blue (X121) overall. As I am not one for the 'ordinary' RAF/USAF schemes, I opted for the Dutch example. The canopy and the turret were masked off and the whole model was sprayed.

Once dry the decals could be applied. I am not a fan of Revell decals at present, so I will not harp on here, suffice to say those in this kit are up to their usual standard (make of that what you will). When all the decalling is complete, and it takes quite a while, the whole model was sprayed with Xtracolor's semi-gloss varnish. Final painting tasks include the propeller, tail wheel, main undercarriage oleo legs and wheels.

Overall not a very surprising model. The quality ranges from good to poor and the mouldings are really showing their age. It is not an easy kit to make and any inexperienced modeller attempting it would be disappointed. With a new range of TBMs due soon from Accurate Miniatures, I would personally save my money and wait for them instead. Either Revell should retool such old kits or re-issue them with all the gimmicks in a 'nostalgia' series.

Richard Franks

TECHNICAL DATA

Manufacturer: Monogram

Scale: 1:48th

Price: £7.95

Type: Injection moulded plastic

Kit No: 74023-0389

Parts: plastic: 43; clear: 7

Decal options: 2: 850 Squadron, FAA, HMS Empress 1944 No.4 Sqdn, Marine Luchtvaart Dinest, 1959

ACCESSORY REVIEW

PARAGON – A MODEL OF PERFECTION

It is always nice to see a new name arriving within our hobby, and this was the case at the Southern Expo when the Paragon range was launched by Neil Burkill.

The range contains various resin conversion and detail sets which are complimented with etched brass components. The range and quality of these items may seem familiar, and there is a reason for this. Over the past few years Neil has been producing the masters and casting these sets for sale under the Xtraparts label. However, after a lot of consideration he decided to take the plunge and go it alone. The launch of the range at the Expo was a worry for him, but judging by the amount of people around his stand, I think he is on to a winner.

I have two sets from Neil, both for the Airfix 1:48th scale Mosquito and I will give them a little write up review now, then follow it up with a full article on the conversion in a forthcoming edition of *Scale Aviation Modeller*.

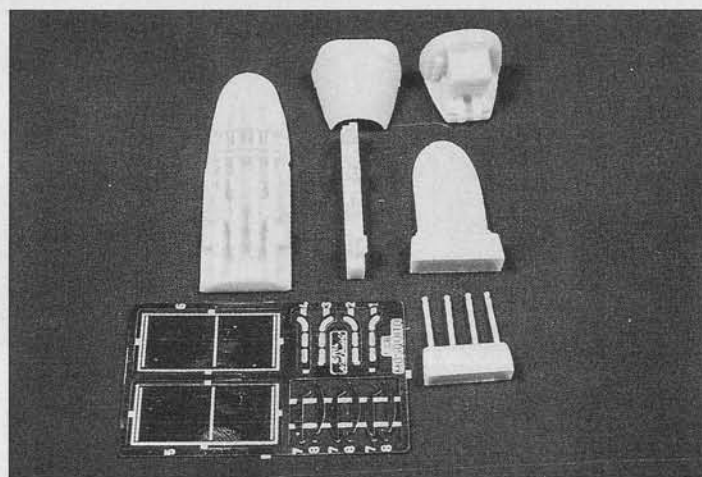
The first set I have is number 4839 which gives you both 0.303 inch and 20 mm open gun bays for the Mosquito. The set comprises 12 resin parts, plus a small fret of etched brass containing another 12 pieces.

The resin pieces are the 0.303-inch bay, access hatch (which is commendably thin), 20 mm cannon bay, 20 mm cannon ports, 20 mm cannon shell ejector chutes (x4) and four 0.303-inch barrels. The etched pieces are the 20 mm cannon bay access door and hinges (x6) plus the 0.303-inch ammo feed chutes.

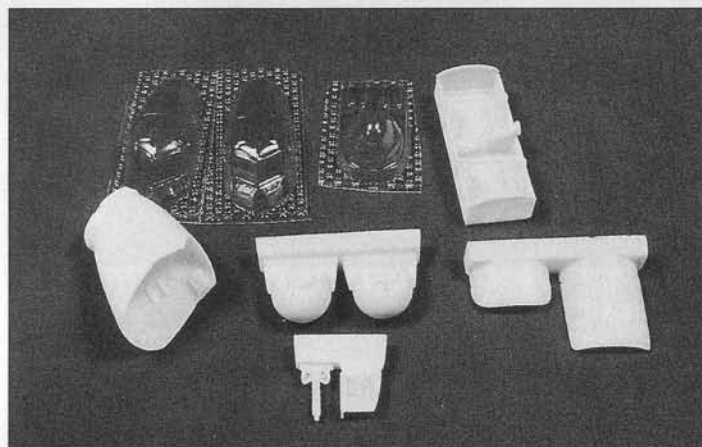
The quality and detail of these pieces cannot be faulted, I cannot wait to get started and fit them. For £7.99 this is a most excellent set and one I can definitely recommend to all.

The second, number 4876, is one which as soon as I saw it had me hooked. I love the Mossie and I have always liked the idea of a 'highball' version. Here Neil has come to my aid and not only has he made it in 1:48th scale, but in 1:72nd too. My example was the former and it is once again based on the Airfix kit.

The conversion consists of eight resin pieces and five clear vacuformed parts. The resin pieces are a new bomber's nose (complete with interior detail), the Highball bomb bay, two exquisite Highballs, forward and aft bomb bay fairings, a new control column (yoke style) and a new instrument panel. The clear pieces include both styles of cockpit canopy; Neil believes that both the 'blister' and 'bulged' side window may have been used, so he has included both types in this set, a



Two from Paragon. Above: 1:48th scale Mosquito 20 mm and .303 inch gun bays. Below: 1:48th scale Mosquito 'Highball' conversion.



new bomber's nose and side windows. The modifications necessary to achieve the 'Highball' conversion on the Airfix kit are not too drastic and the little instruction leaflet with the set is quite comprehensive. At just £9.75 this really is worth the money.

These and all the other items within this range can be purchased direct from Neil at Paragon design, Unit 10E, Folgate Road, North Walsham, Norfolk NR28 0AJ. Telephone or Fax (01692) 407577 for full details of the range.

Richard Franks

SOMEWHERE TO SIT IN YOUR DEVON

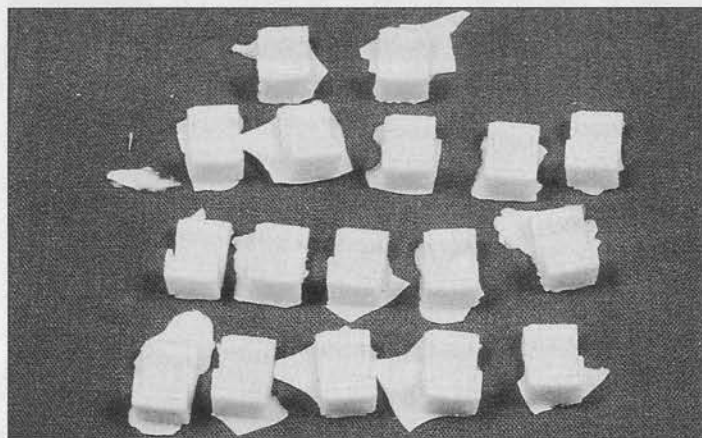
Magna Models is now well established for its range of resin kits. Recently the editorial office received the first in its new accessory line, so here's a little bit about it.

The packet, numbered 7201, contains 17 resin seats for the interior of a 1:72nd scale Heron, Devon or Dove. These seats are designed for either the Airfix Heron Mk.2, the RAREplanes Dove/Devon Mk.1 and Mk.3 or the Vami Dove. Each seat is

well moulded and will only require a little sanding down on wet 'n' dry paper before installation. Colour notes are included on the instruction slip, plus a number of published reference articles in aviation and modelling magazines.

Overall this little packet of seats will fill an otherwise empty interior in anyone's model. The quality of the resin and mouldings is very good any my examples had no air bubbles visible at all.

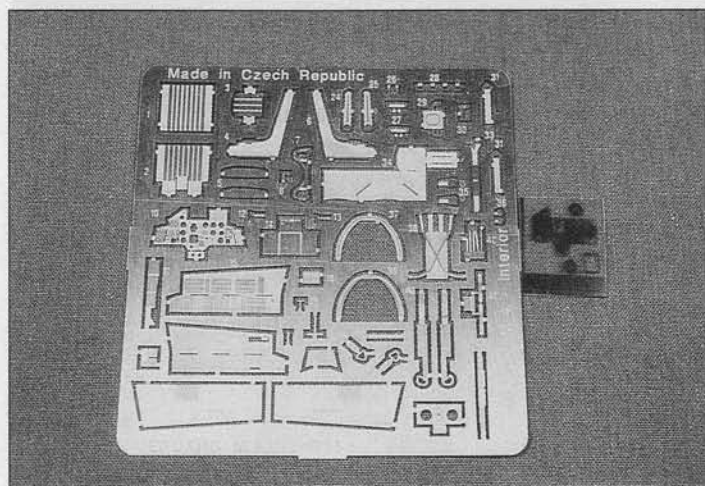
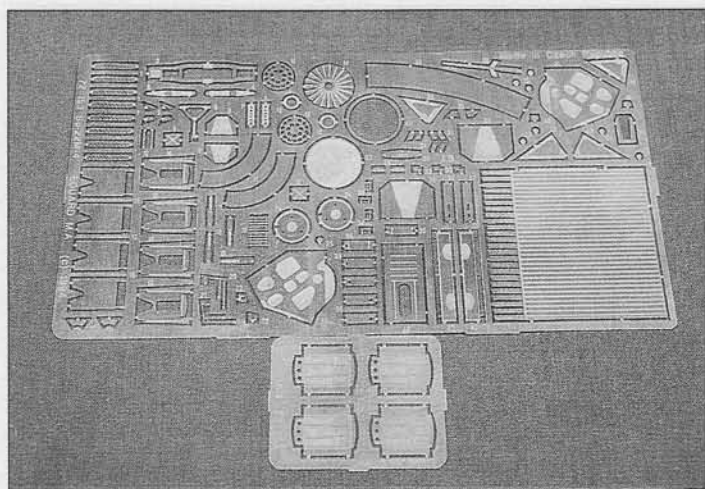
My thanks to Martin Gomm of Magna Models for the supply of this review sample.



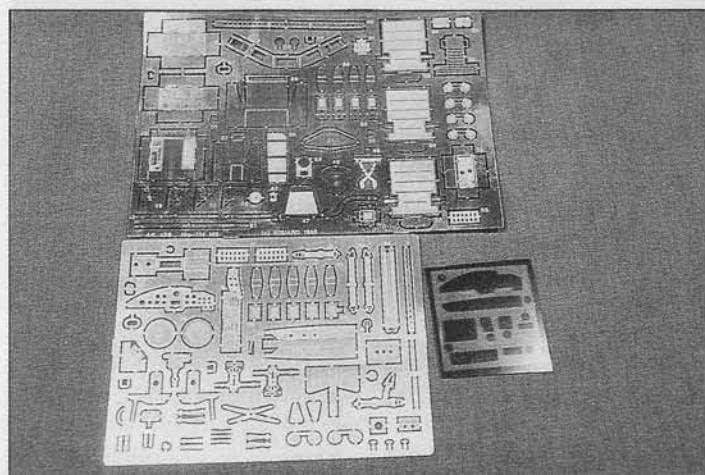
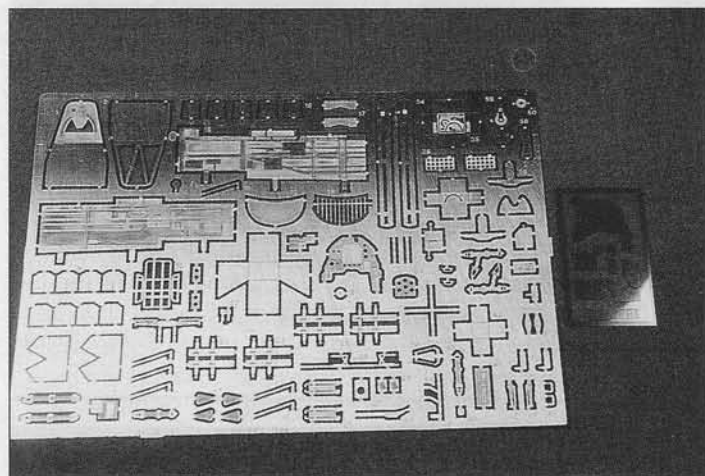
The set costs £2.95 and it and all other Magna products can be purchased direct from them

at 4 Brian Close, Sandford, Wareham, Dorset.

Richard A. Franks



Eduard excellence. Top: 1:72nd scale Su 22M-4 exterior (72-153). Above: 1:72nd scale Su 22M-4 interior (72-157). Below: 1:72nd scale Ju 87B Stuka (72-133). Bottom: 1:48th scale He 111 (48-138).



LATEST FROM EDUARD

A visit to Southern Expo is always enjoyable, but it was made more so this year with a friendly chat with Stan Overall of Four Plus UK. I am always ready to find out what's new from him and I was very happy to receive the latest releases from the prolific Eduard.

The Expo visit resulted in three new 1:72nd and two 1:48th scale sets.

The first, in 1:72nd scale, is a topic dear to my heart, namely something Luftwaffe. Set 72-133 is for the Junkers Ju 87B-2 and is designed to fit the Fujimi kit. One of their larger sized frets, it contains no fewer than 90 parts. These are complimented by an acetate instrument panel backing (2 parts), radio faces (2 parts) and side consoles (2 parts).

The detail within this set is quite exceptional – both side walls are replaced and fully detailed. There's new head armour, radios (complete with the acetate fascia), spent cartridge collection bin and a really excellent new rear gunner's seat. Positionable radiator flaps, flap actuators and a rudder horn are all included. The package is completed with new fin and carriers for the four underwing SC 50kg bombs.

The next two sets are related, as they both deal with the Sukhoi Su 22M-4 and are meant to complement the Italeri/Bilek kit. The first, number 72-153, is for the exterior and is the bigger of the

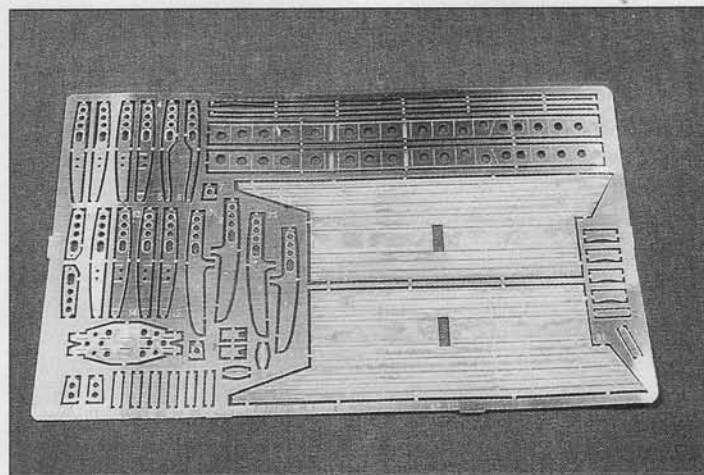
two. Consisting of 108 pieces, on one large and one very small fret, the set gives you a new nosewheel well roof, plus side detail.

There is a very complex piece of reconstruction for the nosewheel oleo, plus new main undercarriage doors and wheel centres. New exhaust cans and 'feathers' are included along with the perforated tops for the ASO dispensers and a new rear for the rocket pods. The interior and exterior of the air brakes are given along with new fins for the fuel tanks and a new forward section for the pitot tube. The set is finished off with various panels and aerials for the exterior of the model.

Next comes the second half of this duo. Set 72-157 is for the interior of the Su 22M-4 and, not surprisingly, is designed for the same kit 72-153. This time it's a much smaller set but does include an acetate instrument panel backing. Detail includes a completely new ejector seat, including all harness. That instrument panel backing goes behind a new etched fascia and the rest of the cockpit area, side consoles and so on get new detail.

As always with etched metal manufacturers, Eduard could not resist giving you a new HUD and this set even gives you the clear section on the acetate sheet! The final detail are latches, etc. for the canopy.

Now let's move onto 1:48th scale. The first of my two sets is 48-112 – a bomb bay for the Monogram A-26 Invader. The large fret only contains 43



Eduard 1:48th scale A/B-26 bomb bay (48-112).

parts, but some of them are quite large. There are three areas which receive the Eduard touch: these are the spar bulkhead, plus a new bomb bay stringer and finally side wall detail.

This little fret should fill a gap in the otherwise excellent kit from Monogram, and as I have just purchased one with the intention of using the AeroMaster Indo-China decal sheet on it, you can guess where this set is going to end up.

The last set is one I have looked forward to for a long time now and once again it is designed for a Monogram kit. Numbered 48-138, it is for the amazing Monogram/Revell Heinkel He 111H-3. The set is huge with one large and one medium sized fret. It contains no fewer than 120 parts, plus an acetate sheet with seven backing sheets on it.

Detail is extensive – the cockpit floor receives detail including new rudder pedals (in two styles). The cockpit side consoles get all the levers, etc. whilst the rear bulkhead gets the claxon. All the straps for the pilot's seat are included.

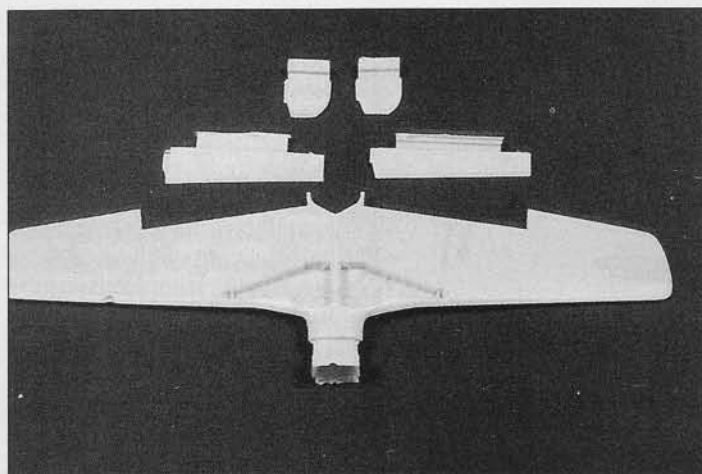
The centre and pilot's instrument panels are included along with their respective acetate backing. The machine gun receives some nice detail, including sights and ammo drum rear faces (a definite improvement on the kit part). There's also detail for the dorsal turret, plus a new gunner's seat. On top of this are various new detail parts for the main fuselage areas, including parachute stowages. The final detail comprises all the radio equipment in the rear fuselage.

Well, overall these are all excellent sets. I will shortly be using the A-26, Ju 87 and He 111 sets myself, as I have examples of these kits in my pending pile.

All the above sets, plus all other Eduard products can be purchased direct from Four Plus UK, 29 Westwood Gardens, Hadleigh, Benfleet, Essex SS7 2SH.

My thanks to Four Plus for the review samples.

Richard Franks



MUSTANG CORRECTION

New from the Pittsburgh-based company of Hawkeye Designs is a replacement wing for the Hasegawa 1:72nd scale North American P-51B and C series. This correction set was passed to me for review at the Southern Expo by Hawkeye Designs' UK importer Avia Imports.

The set, No.203, is entitled '1:72nd P-51B/C Corrected Wing for Hasegawa Kits' and it consists of a completely new wing, flaps and main undercarriage doors. Anyone who has purchased any of the P-51B or C kits from Hasegawa may well be aware that although the overall plan of the wings do represent those of a P-51, they are unfortunately nearer the P-51D type. This is the reasoning for Hawkeye Designs correction set.

The correction would seem simple, just supply a new wing? However, Hawkeye Designs has gone a little further and taken the opportunity to give you separate flaps. The wing, less the flaps, is moulded as one piece and comes complete with a nifty bit of graffiti on the centre section: 'Kilroy was here' no less! The flaps are cast on separate blocks of resin and will need only the smallest amount of cleaning up before use. In my example, unfortunately, one of the flaps was quite warped. A quick dip in warm water should rectify this. The wing itself really needs no preparation at all and can be used straight from the pack. The last element of this set are two new main gear doors: these also come on an individual block of resin and,

like the flap, will only need a small amount of tidying up before use.

A little cutting is required to fit this new wing, although this is indicated on the instructions. Having seen this conversion achieved elsewhere, all I would say is *do not remove all the leading edge wing root*, as I think it is best to remove a little bit at a time so you don't end up filling a gap at a complex point which didn't need to be there!

This new set fully achieves what it was designed to do and with it your P-51B/C will look the part, once more. This set, like the Mistel conversion I reviewed in an earlier issue, comes at a price and this, in my view, is the only thing against it. Because it has come from the USA and customs and VAT have had their share of it over here, the retail price is £11.95, plus £1.50 postage if you mail order it. The quality and accuracy of this set cannot be faulted, so if you want to get an accurate model from your Hasegawa kit, this is the only game in town.

My thanks to Mike at Avia Imports for the chance to review it. This and all other products from Hawkeye Designs are stocked by Avia and they can be contacted at 56a Priory Road, Peterborough, Cambs PE3 6EE. Telephone (01733) 349072 for credit card orders.

Richard Franks

FINELINE AIRCRAFT ACCESSORIES

New accessories from Fineline in 1:72nd scale include a conversion for the Matchbox Meteor. The kit, C001, contains resin parts for a new nose and wing tip pods to turn your Meteor into a U.16 drone version. Full instructions are given for the conversion, along with references. The kit is designed for use alongside Fineline's decal sheet 2006 which covers the colourful Meteor at RAE Llanbedr. Cost of the sheet is £3.00

Sheet C004 brings the current Harrier GR.7/AV-8B Plus up to date with 100 per cent LERX and air ducts. Again produced in resin with full instructions, the set is meant

for the current Airfix/Heller offerings but can be used on other manufacturers' Harriers. The set retails at £2.50.

Both sets are highly recommended: get them from Fineline at PO Box 14, Bridgnorth, Shropshire WV15 6DB – don't forget to add postage and packing.

Gary Madgwick

JB MODELS

Although obviously not an aircraft, LandRovers are extensively used by the RAF and other Air Arms around the world, and this lovely Hard Top LWB LandRover with GS Trailer costs £3.25.

The kit provides the option of building a soft-top version. The LandRover itself consists of 24 grey parts plus five

transparent pieces, while the trailer comprises a further 15 parts.

The kit goes together very well and there are full instructions together with colour details and Humbrol paint reference codes. My only gripe is that the wheels on the LandRover are those fitted to civilian types and are not to military pattern.

Decals cover four vehicles and include RAF, Royal Navy and Army machines. Highly recommended for those of us who like giving a theme to our finished aircraft models or build dioramas.

The LandRover is available from ED Models, 64 Stratford Road, Shirley, Solihull, West Midlands B90 3LP.

Gary Madgwick



A 'HI-TECH' JAGUAR

The French company of Hi-Tech is well established, offering a wide selection of resin and etched brass detail sets. The quality of these sets is, as far as this reviewer is concerned, the standard by which all similar products should be judged.

One of the recent sets from Hi-Tech is a detail set for the Sepecat Jaguar A, based around the 1:48th scale kit from Heller. As we did not have such a kit with the editorial staff on which to test this detail set, I will endeavour to illustrate what it contains. It comes in the usual stout cardboard box, again its size allays the quality and depth of coverage offered within it. The parts are made of resin, etched brass and vacuformed clear plastic. The resin is the usual type utilised by Hi-Tech, it has a sandy texture, is light buff in colour and offers superb clarity and finesse of detail. The pieces offered in resin are a full set of undercarriage wheels, 30 mm cannon ports, exhaust cans, flaps and slats (drooped), dorsal scoop, ejector seat and cockpit inserts which comprise the rear bulkhead and floor plus a new instrument panel and upper coaming. The quality of the detail on these pieces has to be seen to be believed and the ejector seat especially, you pay £3.00 plus for it on its own. Surprisingly though the new resin wheels are not 'weighted' which is a shame.

The smaller details are offered in etched brass and the fret contains 50 pieces, these include the instrument panel, rudder pedals, rear view mirrors, seat harness buckles, HUD frame, UHF aerials and exhaust detail. The final detail is a clear vacuformed canopy.

I cannot comment on the fit of these pieces, however, whilst looking at a Heller kit I did take the opportunity to offer the cockpit inserts up to the fuselage halves. As expected they fit very well indeed, only a few minor adjustments and cleaning up will be required. All of the pieces offered in this set will go a long way to making a real show stopper of a model. I always find that the quality of engineering which has gone into these pieces will make you achieve things you never thought possible. The interior of course will need all the seat harness manufactured, as only the buckles are supplied. As a personal point I would have preferred to have each belt complete, as an etched component, however, many modellers I suspect prefer to make the belts themselves.

This is another excellent product from Hi-Tech, as you would expect the price is not cheap, the set should be available at about £22.00, but you do seem to pay for quality these days and this set is certainly of the highest quality. The instructions with the set can be a little confusing at times as the translation is a little ropery, however if they are used in conjunction with the Heller plans I am sure you will have little problem with it. Additional reference material will be essential to use this set to the full, and some possible sources are listed by Hi-Tech on the instructions.

If you like the Jaguar and you can cope with resin and brass, you really should think seriously about one of these sets. I appreciate that the cost is high but this really is quality with a capital Q.

Richard Franks

PP AERO-FIGURES

PP Aeroparts used to offer a wide array of detail sets, especially ladders, but this has now ceased and the company has evolved along new lines. Now called PP Aerokits, it has moved into the multi-media kit and detail set market. Not forgetting its roots, however, I was pleased to see that it was reproducing some 1:48th scale resin figures and was therefore delighted to receive them for review via the editorial office.

The two sets I have are: FIG401 Royal Air Force, Air and Ground Crew Figures, 1980s and FIG402 Royal Navy Air and Deck Figures, 1950s.

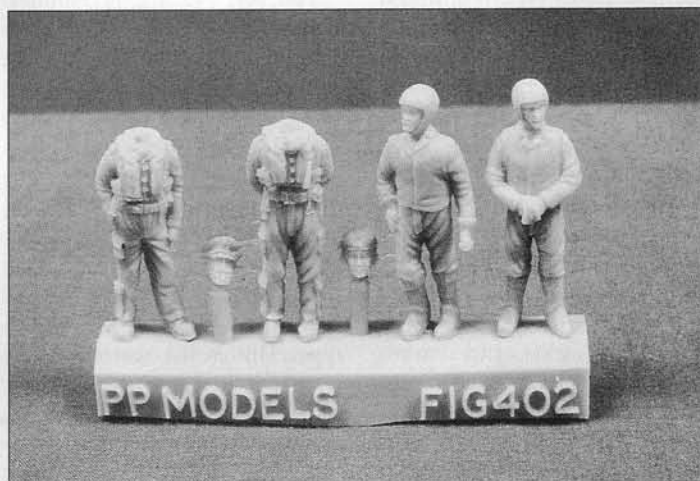
Each set comprises four figures. Each group is moulded onto a common block and are packed within a neat little cardboard box. Each set of figures was mastered by Robert Lance and the quality and detail on each really has to be seen to be appreciated. A little

instruction sheet with each set tells you how to prepare each figure and there are also some painting and finishing details. The naval figures will look good alongside any late 1940s and 1950s era aircraft, especially PP Aerokits' very own Fairey Firefly. The modern crew does not seem to have the finesse of the earlier set – the faces especially seem very thin and the neck on one of the ground crew looks about a foot long!

Overall each of these sets will go a long way to adding a little reality to your aircraft set-piece. I am not a figure painter, so they would look terrible if I had painted them and that is why the accompanying photographs are of them in their 'raw' state.

My thanks to PP Aerokits for the review samples. Both sets cost £4.95 plus 30p post and packing direct from PP Models, Studio 2, 9 Bath Buildings, Montpelier, Bristol BS6 5PT.

Richard A. Franks



SCALE MODEL ACCESSORIES

This is a new name on the aircraft modelling front, but one which has been about for a while, albeit concentrating on the military side of our hobby. The release of numerous accessories and figures from this company, which were advertised in the modelling press gave a hint of what to expect, however it was not until I had seen the products at the Southern Expo, that I realised just how good they were.

It was with great pleasure that I therefore received the following products for review via the *Scale Aircraft Modeller*

stand at the Expo.

All of the following products are to 1:48th scale and they consist of three sets of figures, a Kettenkrad and a torpedo trolley. All of these topics are WW2 based and for Luftwaffe subjects... great!

Let's deal with the figures first. We have a German pilot and ground crewman in set number SMAAR 002. Each is cast as one piece and only a small block of resin on each foot needs to be removed. The detail is crisp and clear, with no air bubbles and little flash to mar any of the detail. The ground crew man is of course in the distinctive black overalls of Luftwaffe crews, whilst the seated pilot figure would be in

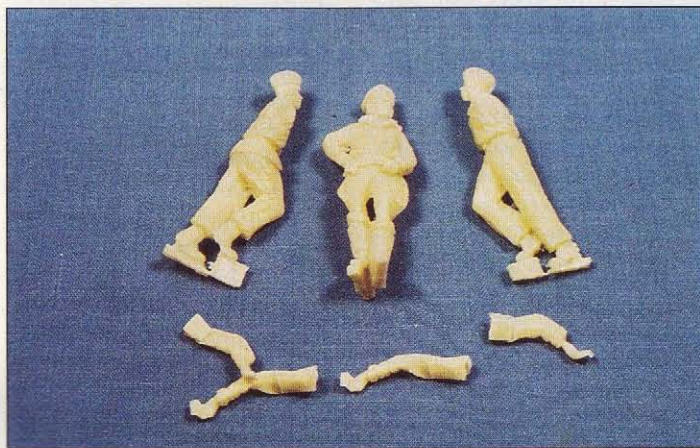
full temperate flying gear. This is an attractive set of figures, with many applications and it well priced at just £4.24.

Next set is SMAAR 006 and this consists of three figures comprising a Luftwaffe pilot (standing) and two ground crew men. The pilot is moulded as one piece with only those little blocks of resin on his feet to remove. The ground crew men, however, have separate arms, the reasoning for this is that they are posed in such a manner as to allow you to place them at the leading edge of an aircraft's wing, as if they were pushing it somewhere. There is a little bit more flash visible on these two figures, but I really do mean a little! This is a good companion to the previous set – it is a little bit more expensive due to the inclusion of an additional figure, but is still reasonable at £5.77.

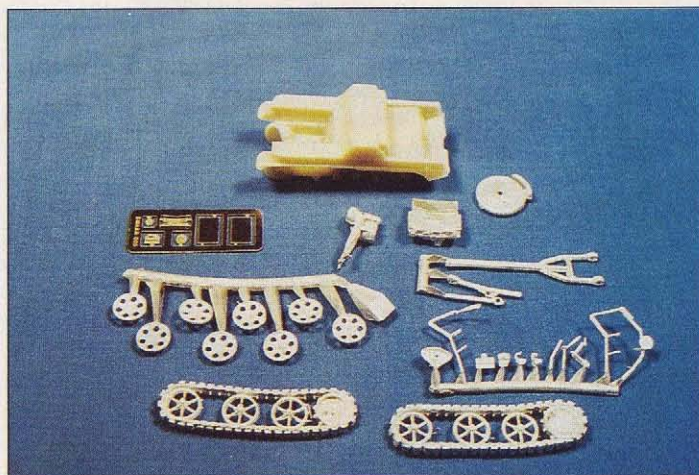
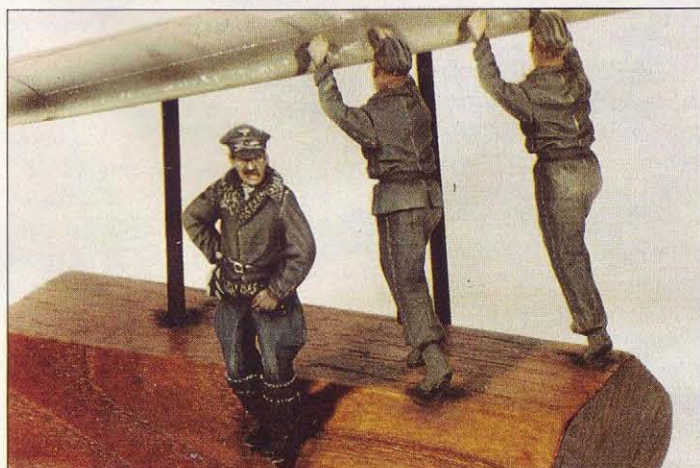
The next set, number SMAAR 007, consists of two crew men for the Kettenkrad (more on that later). The set therefore contains two seated figures, one driving the machine and the other seated behind him. Due to the need to position these figures within the

Kettenkrad, they too have separate arms. Once again there are only the little blocks of resin on the feet to remove and these two figures were perfectly cast: no marks or flash at all. This set will only be of interest if you get the Kettenkrad, however it may be used for other purposes. All in all, another great little set and at £4.24 it is not badly priced either.

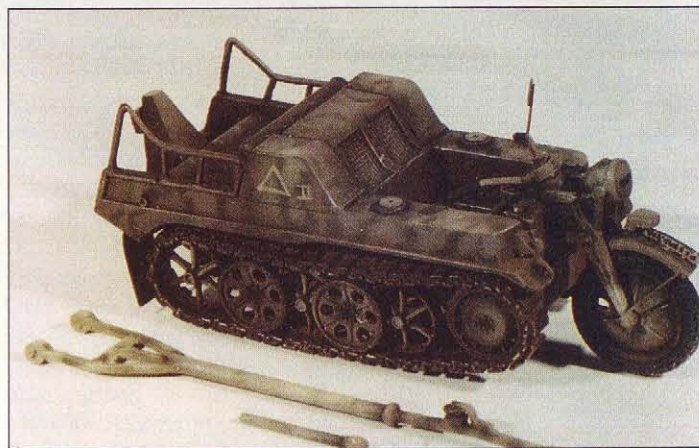
Now to the first piece of equipment from SMA. This is an axis torpedo trailer and it is set number SMAAR 009. This time the product is made entirely of white metal and it consists of 23 pieces. The trailer is entitled 'axis', as it can be used for both Italian and German set pieces. All of the components are amazingly cast with little or no flash anywhere. The mouldings themselves are excellent and I can only dream about getting this type of quality in metal component in current aircraft models! Both single or multiple towing arms are included, although the longer, multiple, arm in my set was bent in a loose 's' shape. This is an excellent addition to any diorama and ideal for setting



Luftwaffe personnel in their 'raw' and 'finished' states.



Before and after: Scale Model Accessories 1:48th scale Kettenkrad



up next to your He 111 or Ju 188A-1. The use of white metal has, of course, increased the selling price and this is the only drawback. At £15.23 it's not an item you will just decide to have a few of!

Last, and by no means least, the Kettenkrad. Since the old Bandai kit of the Kettenkrad in 1:48th scale went out of circulation, a Kettenkrad has been a very sought after item by Luftwaffe modellers. The reason for this is simple: it's what was used to tow the Messerschmitt Me 262 around with. This model is boxed, unlike all the previous ones which came in resealable bags with header cards. Inside the box is a one piece, resin, main body. There is also a small fret of etched brass with six pieces on it (the number plates, mud flaps, wing mirror and rear light). The rest of the model is white metal and consists of 28 pieces. The tracks are complete and include the forward drive sprocket and rear drive wheels moulded as one piece. The remaining drive wheels are cast separately. Once again the casting of the resin body is faultless and the brass is

excellent. The main of the white metal is totally flash-free, however the towing arm and a couple of the smaller components did have some flash evident. This is a truly excellent product and one which I will be partaking of another example of, as I want to use one on both my Me 262A and Me 262B models (when built!). The use of all three mediums and the extra cost for packaging has increased the price a little. At £17.26 this is not a cheap item and I suspect many will be put off by that, which is a shame as the product is excellent and beautifully executed.

All of these products are heartily recommended to all. All SMA products can be obtained direct from the manufacturer at 160 Green Street, Enfield, Middx EN3 7LB.

As my figure painting leaves a lot to be desired, the pictures included with this review are from the manufacturer.

My thanks to Scale Model Accessories for the chance to review these products and I look forward to seeing what they bring out next.

NEW FROM BLUE RIDER

These are the latest releases which were passed to *Scale Aircraft Modeller* at the Southern Expo.

The first of six sheets is number BR228 and is for the Serbian Aviation (Balkan Wars 1912-13 and World War 1 1914-15). The sheet contains the following:

Henri Farman HF20 based at Barbalusi, it took part in the siege of Skadra, Albania in 1913; Bleriot XI-2 Artillerie also based at Barbalusi and taking part in the siege of Skadra, this aircraft was flown by Zivojin Stankovic; Bleriot XI-2 Genie based at Pozarevac. Aerodrome, Serbia 1915 and flown by Lt Miodrag Tomic; Maurice Farman MF.11, part of the Serbian-French Escadrille MF S99 based at Bela Palanka Aerodrome, piloted by Sergeant-Major Marcel Thirouin.

The next sheet, number BR234, is entitled Sworl Camouflage (for Albatros D.III (OEF)). The topic of 'Sworl' fabric on Austro-Hungarian aircraft has been in vogue of late and this new two sheet set from Blue Rider should be very popular. The sheet contains the following options:

Albatros D.III (Oef): Austro-Hungarian Air Service, Romagnano Airfield, 1918, flown by Franz Peter; Albatros D.III (Oef): Polish Air Force, Mokotow Airfield, 1919-20; Albatros D.III (Oef): Austro-Hungarian Air Service, 1918, flown by Korporal Geza Keisz; Albatros D.III (Oef): Polish Air Force, Warsaw, 1921. All of these aircraft use the Sworl fabric. The D.III can be achieved by using the Blue Rider conversion (No.

BR110) on a Revell or Esci Albatros D.III kit.

The next sheet, number BR235, is entitled Lithuanian Fokkers (Fokker DVII's of the Lithuanian Air Force). The options are Fokker DVII: No.2 Kaunas Airfield, November 1920 (overall clear linen); Fokker DVII: No.3 Kaunas Airfield, 1921 (overall silver); Fokker DVII: No.5, October 1921 (overall clear linen with metal engine cowls); Fokker DVII: No.5, 1928 (overall dark brown, light tan, medium green and aluminium doped lower surfaces); Fokker DVII: No.37, 1937 (fuselage and tail are medium green, with natural metal engine cowls and aluminium doped wings).

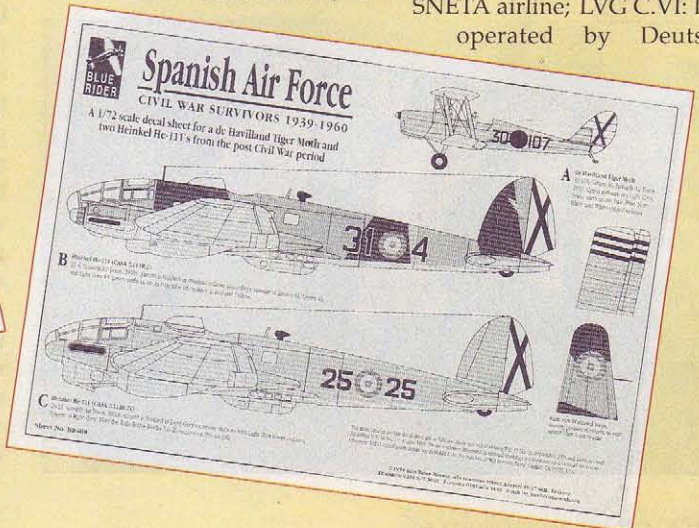
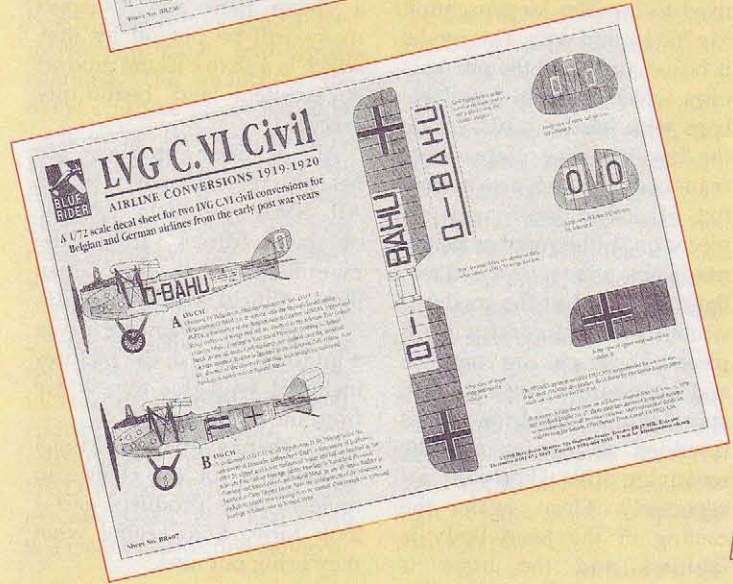
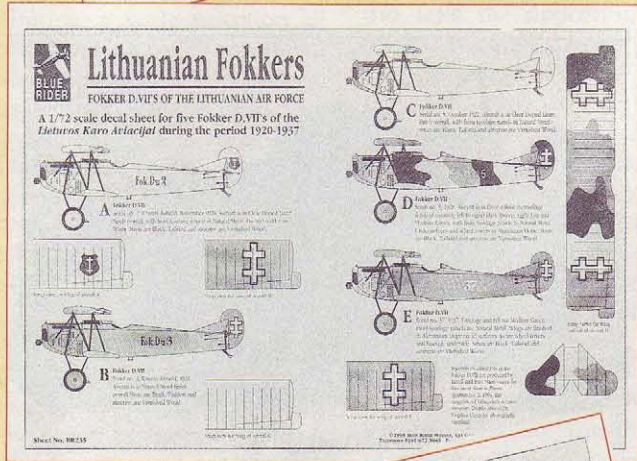
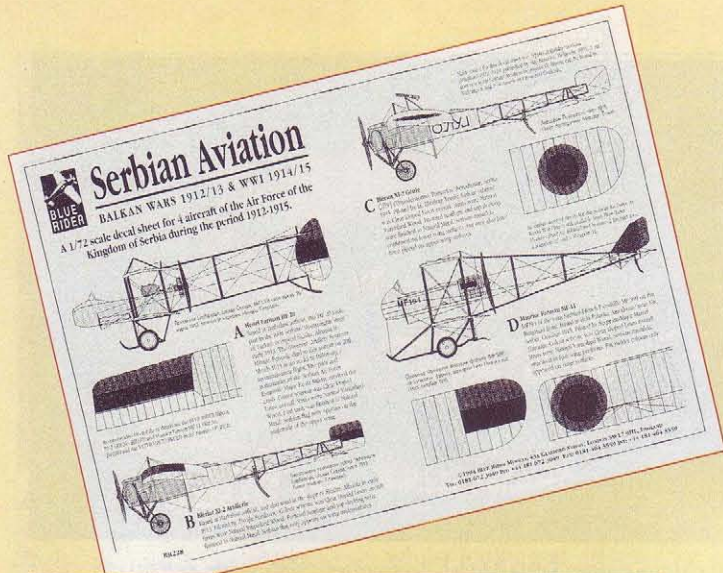
Next is BR236, which is for the Royal Belgian Military Aviation 1914-18. The options are:

Sopwith Strutter, 4th Escadrille, Aeronautique Militaire 1917; Nieuport 11, 1st Escadrille, Aeronautique Militaire, 1916-17; Nieuport 16, No N1497, 1st Escadrille, Aeronautique Militaire, 1916-17; Nieuport 11, No N3, 5th Escadrille, Aeronautique Militaire, 1916-17, piloted by E. Thiffry; LVG C.VI, S/No 8939/18, captured aircraft operated by Aeronautique Militaire, 1918-19.

The kit bases for these are Strutter = Pegasus, LVG = Pegasus, Nieuport 11/16 = Classicplane and five colour lozenge decals for LVG = Pegasus.

The penultimate sheet, number BR407, is for LVG C.VI Civil Airline Conversions 1919-20. The options are:

LVG C.VI: D-BAHU obtained by Belgium and operated by the Brussels based SNETA airline; LVG C.VI: D.30 operated by Deutsche



Luftreederei (DLR), a fore-runner of Lufthansa 1919-20.

The final sheet, number BR408, is entitled Spanish Air Force Civil War Survivors 1939-60. The options are: de Havilland Tiger Moth: 30-107, Grupo 30, Spanish Air Force 1939. This is painted light grey on the upper surfaces and pale blue under surfaces; Heinkel He 111 (CASA 2.111B.1): 31-4

Spanish Air Force 1950s. Painted RLM 61, 62 and 63 on the upper surfaces with RLM 65 underneath; Heinkel He 111 (CASA 2.111B.21): 25-25 Spanish Air Force 1960s. This aircraft is light grey upper and light blue lower surfaces (note: that the aircraft is fitted with Merlin engines).

All of these sheets are very highly recommended. The

quality of the printing is all excellent and the 'Sworl' fabric has to be seen to be believed. The prices are BR228 £3.50, BR234 £5.50, BR235 £3.50, BR236 £3.50, BR407 £2.80, BR408 £2.80.

All sheets within the Blue Rider range are available direct from Blue Rider Models, 43a Glasgow Street, London SW17 9HL.

As a point of interest, the company have announced the release of a new quarterly magazine entitled *Insignia* which will be available in November and consist of 32 pages in A4 format. It will initially be only available via subscription, so if you are interested drop Blue Rider a line.

Richard Franks

REBELS AND REDS

When an air mail package arrives in the post, it invariably means that I am about to find out what is new from AeroMaster. This was the case recently, when a small envelope arrived containing two new decal sheets. This is not a great number in comparison with AeroMaster's usual release level, however they are still well worth looking at.

This little selection offered just one 1:72nd and one 1:48th scale sheet, both of which come with the now familiar full colour instructions. The 1:72nd scale offering is for Lavochkins, whilst the 1:48th scale one is for the P-40N.

The Lavochkin sheet is number 72-036, and it has been missing from the release schedule for quite a while now, especially when you consider the fact that the last 1:72nd scale sheets issued by AeroMaster were numbered in the 130s! A welcome addition to the previously issued Russian P-39 sheet, this new one for Lavochkin La-5s and La-7s is just as colourful. There are eight options on the sheet and these are:

La-7 flown by Lt Col Dolgushin, 165th IAP, which is in light grey upper and light blue lower surfaces. It has a red cowl and spinner, whilst the entire tail area is red and white stripes.

La-5FN flown by Vitali I. Popkov. This aircraft is light grey with green and brown blotches on top and light blue underneath.

La-7 flown by Lt Col Dolgushin in light grey upper and light blue lower surfaces. This aircraft has a red nose and spinner.

La-7 flown by Ivan N. Kozhedub. This is dark and light grey upper with light blue lower surfaces. It has a red forward cowl and spinner, plus a diagonal white area on the tail.

LaG-5 3rd IAP, Leningrad, 1945. This aircraft has dark green upper surfaces with light blue underneath. This aircraft sports the well known Russian sharkmouth, or should I say Bears mouth? plus a yellow rudder and spinner.

La-7 flown by Pavel Golovaschov. Once again this is an aircraft with dark and light grey upper surfaces and light blue underneath. It does, however, have a red cowl ring and a yellow spinner.

La-5FN 159th IAP, Leningrad, 1944. Flown by Capt P. Likholeto. Another grey and blue aircraft, although this one has a white spinner and rudder.

All of these aircraft are very colourful, although I have described them as 'another grey and blue aircraft', this is not really the case. The addition of Russian stars and the numerous kill markings and personal motif's make all of the options well worth considering. Stock up on your Italeri La-5FNs and Coperatvia La-5s.

Now to the 1:48th scale sheet, which, as I said earlier, is for the Curtiss P-40N. As many will know the Japanese company of Mauve announced a new P-40N earlier this year. However, Mauve headquarters was in one of the cities devastated by the recent earthquake, so I can only hope that they are all alright. Needless to say, the supply of their new P-40N kit is a little scarce at present. Just four schemes are offered on this new sheet, which is numbered

48-125, they are:

P-40N-5CU flown by 1st Lt Jack A. Fenimore, 7th Fighter Squadron (FS). This aircraft is olive drab (OD) over neutral grey (NG), white tail and wing leading edges and a light blue spinner.

P-40N flown by Lt Robert M. DeHaven, 7th FS. This is another OD and NG aircraft with the white tail, leading edges and blue spinner.

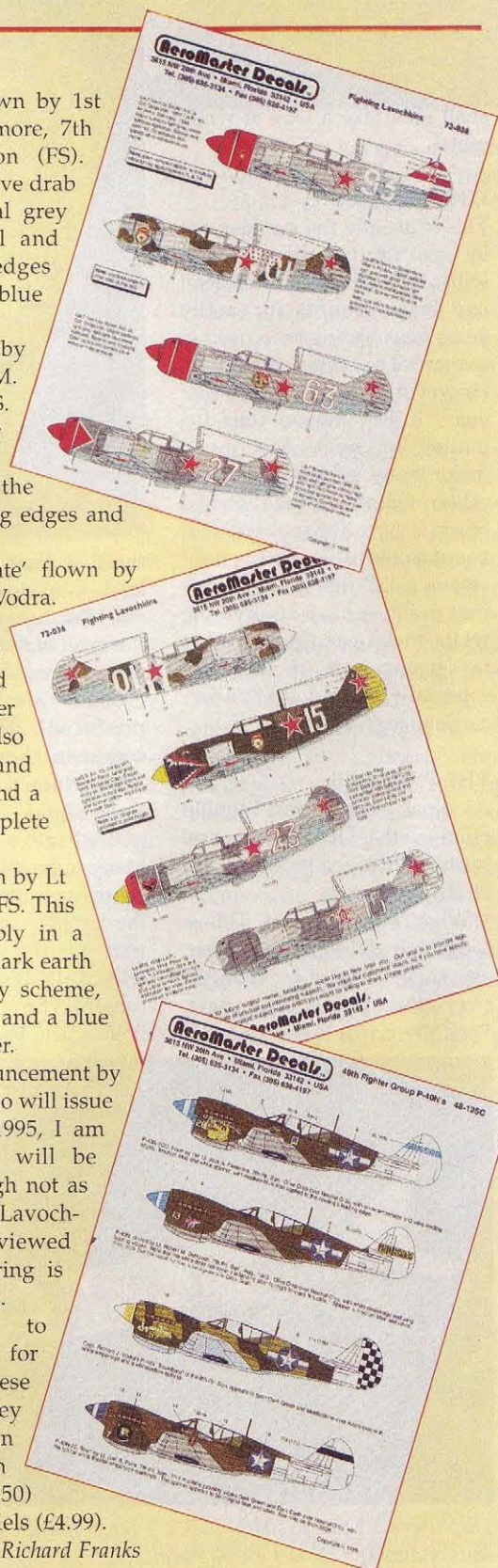
P-40N 'Squirrelbait' flown by Capt Richard J. Vodra. This aircraft appears to be dark green and middle stone over azure blue. It also has a white and yellow spinner and a white tail complete with checks.

P-40N-25 flown by Lt Joel B. Paris, 7th FS. This aircraft is possibly in a dark green and dark earth over neutral grey scheme, with a white tail and a blue and white spinner.

With the announcement by AMT that they too will issue a new P-40 in 1995, I am sure this sheet will be popular. Although not as colourful as the Lavochkin sheet reviewed above, this offering is still very striking.

My thanks to Gaston Bernal Jr for the supply of these two sheets. They are available in the UK from Hannants (£5.50) and Mary-L Models (£4.99).

Richard Franks



THE MULTI-MEDIA EXPERIENCE

BEGINNERS PLEASE

Richard Franks completes his whistle-stop tour of multi-media products with a look at white metal accessories

INTRODUCTION

This is the third and final installment in my series of articles looking at the various new mediums used in our hobby today. Following on from my previous article about photo-etched metal (see *Scale Aviation Modeller*, May 1995), I shall now take a look at white metal.

WHITE METAL

This is usually the last element in most multi-media kits you will come across. White metal has been around for many years now, having been used to cast metal soldiers and the like. However, over the last few years it has moved into the model kit field. Metal can make many parts in a kit that other mediums cannot; etched brass is two dimensional and vacuformed plastic cannot create 'solid' items. Resin, it is true to say, can create anything white metal can, but metal is far stronger. It is therefore especially suited to under-carriage legs, etc.

THE PROCESS

As usual, before I start I should point out that I have no practical knowledge of the production of white metal parts.

What is white metal? This is a difficult question to answer, as white metal has changed over the past few years. Basically it is a low-melt point

metal, which used to contain lead. I say 'used to' as many manufacturers have changed the type of metal they use to a lead-free version.

So how are white metal parts produced? The metal often comes in the form of ingots, from which it is melted down into liquid form and then poured into a suitable mould. Many manufacturers will use centrifuge machines to force the molten metal into every part of the mould and to reduce the number of bubbles present. The only problem here lies with the cooling and

Above: The wealth of metal parts for the Aeroclub Models 1:48th scale Hawker Hunters – this is the F.6 set. Below: Not the Mauve kit but an Arba conversion using the Fujimi kit as a basis: propellers, exhausts, MG81Z, tail end plates and aials are all metal.



therefore hardening time of the metal. I do not have much knowledge here, but I am sure that different components within the metal will change the overall cooling rates, thereby giving the manufacturer sufficient time to complete the moulding task.

Now I may have made the whole thing seem very easy, but anyone who has attempted to cast their own soldiers will know, it's not as easy as it all sounds.

WORKING WITH WHITE METAL

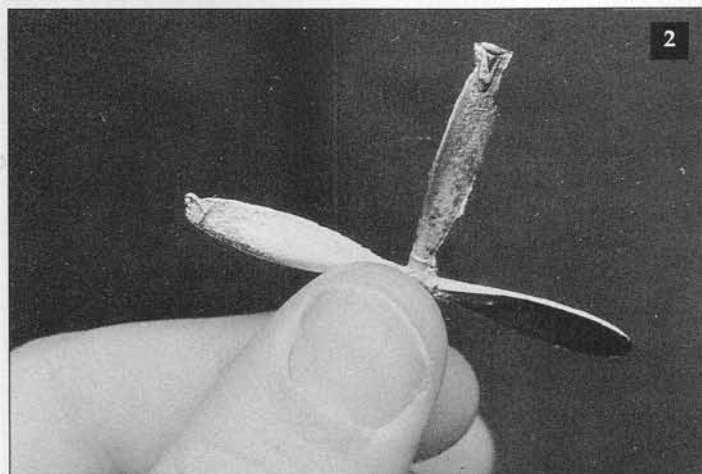
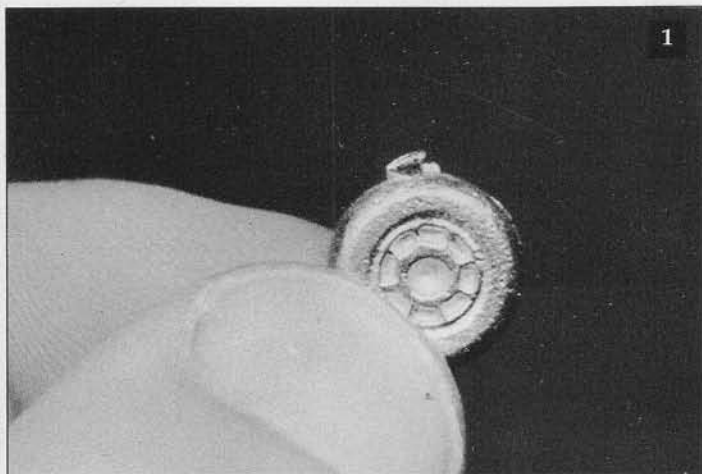
The following comments can be applied to most forms of white metal components.

1. Preparation

All metal components will come as individual pieces or on a length of waste metal which I will call a sprue. The sprue is intended to keep all small pieces together during retail, and it is also an easier and quicker way to produce



The superb 1:72nd Resitech TSR.2 – the entire undercarriage, ejector seats and cockpit divider are all metal.



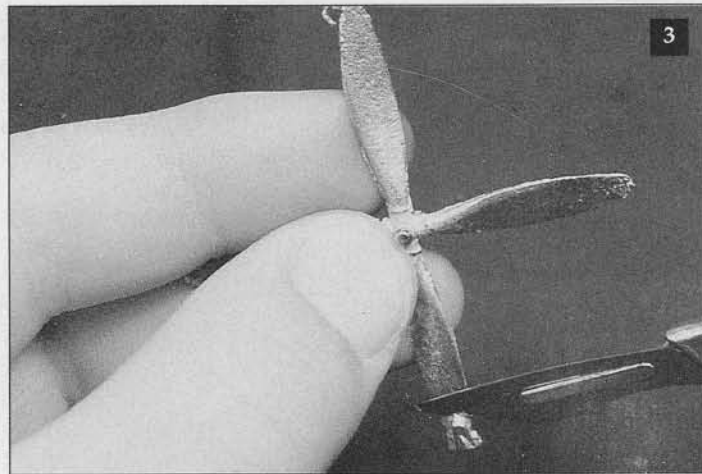
batches of small parts. You may wish to take all the smaller parts off the sprue right at the start, but I would not recommend it, they are easily lost (so speaks the voice of bitter experience!).

Remove each piece only as you require it and prepare it in the following manner:

(a) Remove the piece from the

sprue with a sharp scalpel, or alternatively use side cutters. NOTE: White metal is easily distorted, so ensure you use side cutters well away from the actual part (ie cut the sprue and not the part).

(b) The piece will now have a raised pour point at the point at which it was joined



to the sprue (photo 1). Larger parts which come separately will still have this scar (photo 2). Hold the piece and remove most of the excess metal with a scalpel (photo 3).

(c) Now get a knife and remove all the remaining excess material from the edges, etc. (photo 4). Finally, use a combination of a file and then wet'n'dry paper to re-profile it. This re-profiling process is excellent for ensuring a good edge on propeller blades (photo 5).

(d) Your metal part should now be ready for installation. It is only possible to secure metal to plastic or resin with the use of cyanoacrylate or epoxy cement.

(e) Always try to use tweezers to position metal pieces during gluing, as it's hard work at dinner parties

when you have to explain why your fingers have four bladed propellers attached to them.

2. Assembly

I have already touched on part of this section in the above listing (points d and e). However, a little more illustration can't hurt.

Metal components may be any size, big or small. When you cement any metal parts in place it is best to use tweezers to hold the smaller pieces, as they can be very hard to grip. They may also be sharp, quite easily puncturing your skin, so tweezers are your best option here. Position the part and then apply the cement using an old scalpel as an applicator. This method of applying cement should reduce the amount you use as well as reducing the risk of spilling cement on the component. You may wish to utilise some accelerator with your superglue, as this stops you having to hold the part in place until the glue cures.

Metal components will easily bend, so do be careful how you handle them at all times. Any bends that do occur may be straightened out, but be warned: if you keep on bending and straightening a metal component, it will weaken and eventually break!

3. Final painting

Metal can be painted with enamels or acrylic paints. Using a suitable primer barrier, such as Halfords acrylic spray,

The 1:72nd scale Tasman Oxford II features metal engines, propellers, undercarriage and rear gun.





it should be possible to use most forms of paint with little or no detrimental effect on the metal. Whichever paint you use, treat the metal parts in the same way as you would plastic and you will not go far wrong.

The surface of metal pieces may be pitted. To overcome this you may need filler, but a few coatings of acrylic primer, lightly sanded down each time, should solve this problem.

Once primed and fitted metal pieces can be treated like any other component in your model. Just be aware that they are fragile (small components) and will crush (especially aials).

4. Notes and comments

Choice: Metal is a relatively easy medium to work with. It will allow you to add great strength to a model and this is especially necessary in heavy resin kits. Although it can be easily damaged and marked, it is an integral part of any multimedia kit.

Price: The cost of white metal is high and unfortunately getting higher. Prices for white metal pieces on their own can range from as little as 30p to well over £10 for a selection of components. Metal as a medium itself is used for detail parts such as seats, machine guns, engines, etc. A few years ago 'Tommy' Atkins produced pewter kits of such aircraft as the Hurricane and Spitfire, but this is an exception rather than the norm. Metal remains part of the detail scheme only and it

Magna's recent 1:72nd scale de Havilland Sea Vixen contains metal undercarriage, weapons pylons, undercarriage doors, wheels and ejector seat.

will, I suspect, never become a medium for complete kits.

Hazards: Metal in itself is not a hazard. As I said at the start, most manufacturers have moved over to lead-free metal. You must take the following precautions however, when using white metal (all types):

Always wear gloves when touching the pieces.

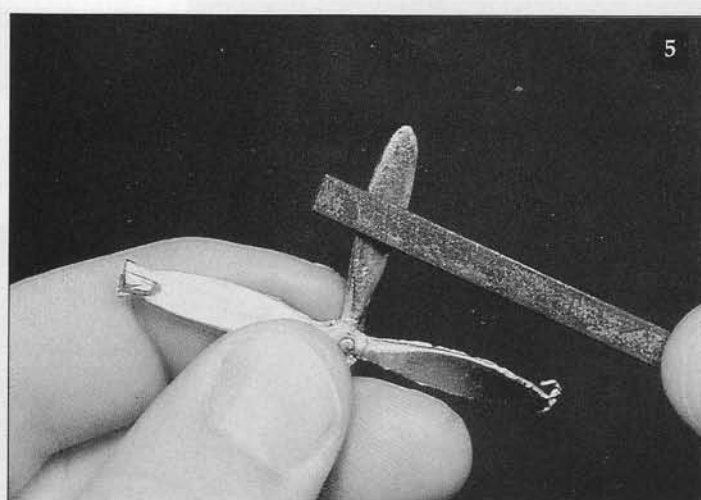
Always wear safety goggles when cutting white metal.

If you do not wear gloves thoroughly scrub your hands after touching the pieces.

DO NOT EAT or HANDLE FOOD until you have scrubbed your hands.

NEVER HAVE FOOD OR DRINK IN YOUR WORK AREA.

Cyanoacrylate and epoxy cements are the only types you can use on white metal pieces. THESE ARE



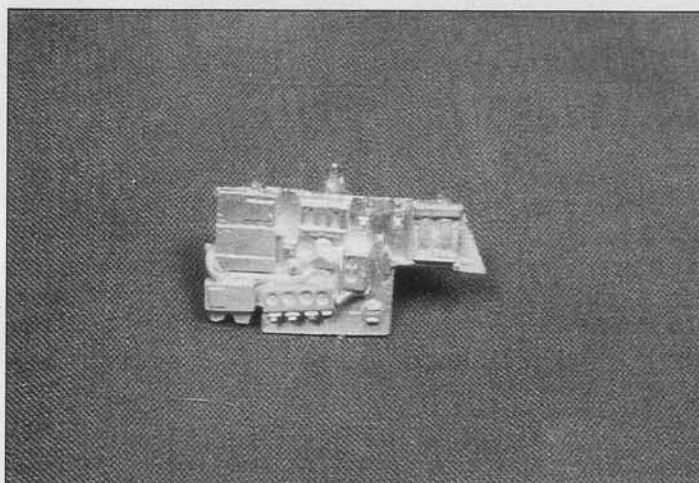
TOXIC, so wear a good fume mask whilst working with them.

Finally, as some metal pieces are small, do not leave them lying about, especially if you have children or pets about. BE SENSIBLE WHERE YOU

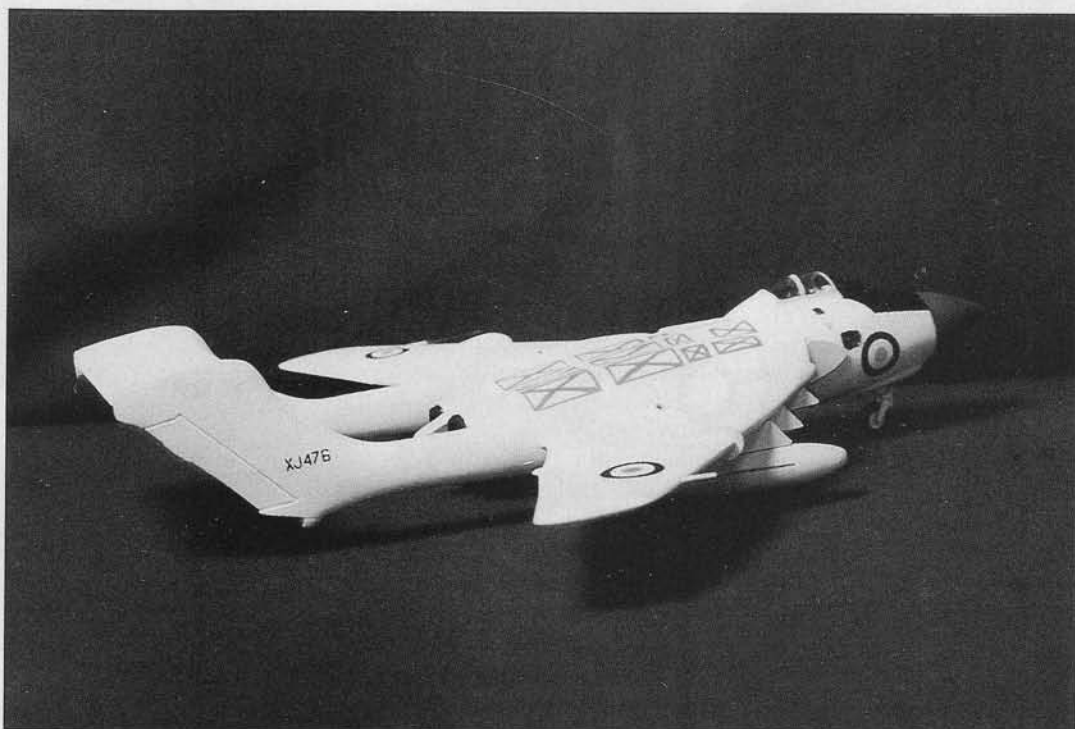
WORK WITH METAL PIECES – ALWAYS THINK OF THE SAFETY OF OTHERS.

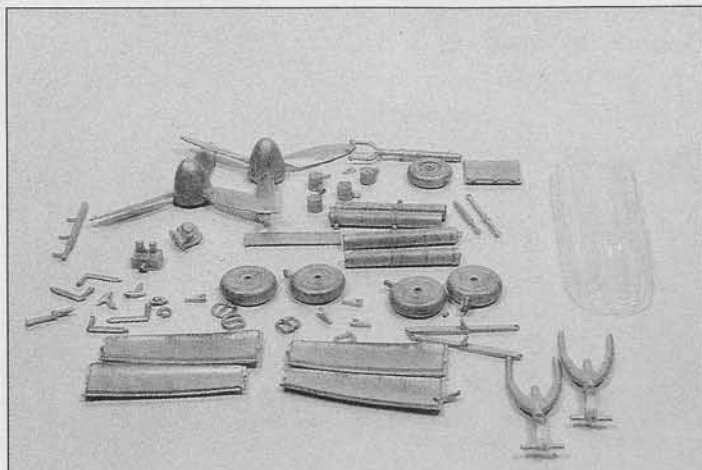
5. Conclusion

Metal is a medium which has added greatly to our hobby.



This is the excellent metal side wall for the Hi-Tech 1:72nd scale Mosquito upgrade.





Metal parts from Arba for the 1:48th scale Heinkel He 219.

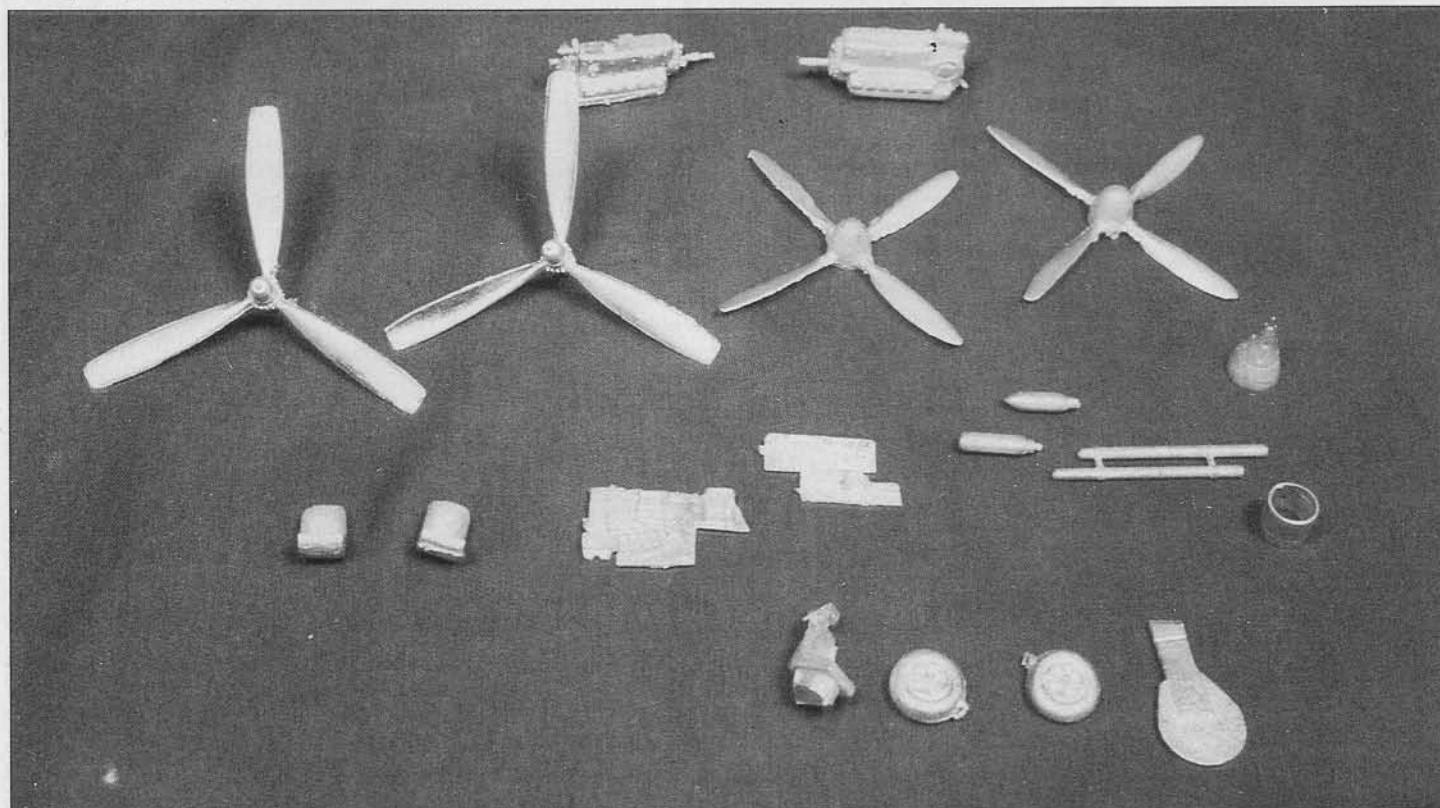
Although metal does not have the finesse or delicacy of etched brass or resin, it is a cornerstone of the multi-media experience and should be given full recognition.

With it, and the other mediums I have dealt with, we as modellers are able to create scale works of art (I am not speaking from a personal

viewpoint here). Like etched brass, it is a medium which can drive you quietly insane; but hey, after all, it's just a hobby.

I have said this with the other mediums covered in this little series and I'll say it again: never be put off by the fact that a model contains metal components. I can promise you that it's easy to work with.

A selection of white metal components: Top (left to right): DB603 engine (Roberts Models) and DB605 engine (Falcon). Upper centre: DH Paddle propellers (Aeroclub) and Ju 488 propellers (Toad Resin). Lower centre: Seats (Aeroclub), Mosquito side walls (Hi-Tech), RP and Bombs (PP Models). Bottom: Seat, wheels and doors (Magna).



LIST OF MANUFACTURERS

This list is not exhaustive and we welcome any additions and corrections. We have where possible given the addresses of UK importers or distributors for foreign companies.

AEROCUB, 5 Silverwood Avenue, Ravenhead, Nottingham BN15 9BU*.

AIRWAVES, c/o ED Models, 64 Stratford Road, Shirley, Solihull, West Midlands B90 3LP.

EDUARD, Czech Republic
Available in UK from Four Plus UK, 29 Westwood Garden, Hadleigh, Benfleet, Essex SS7 2SH.

ESOTERIC MODELS, Hangar, 3a Main Road, East Hagbourne, Didcot, Oxon OX11 9JL*.

HI-TECH, 18 Rue Fernand Collot, Nanteuil Le Meaux 77100 Meaux, France*
Available in UK from Hannants, 29-31 Trafalgar Street, Lowestoft, Suffolk NR32 3AT.

JMGT, 71 Grande Rue, 95760 Valmondois, France*
Available in UK from Hannants, 29-31 Trafalgar Street, Lowestoft, Suffolk NR32 3AT.

KOSTER AERO ENTERPRISES, 25 Glendridge Drive, Bedford, MA 01730 USA*
Available in UK from Four Plus UK, 29 Westwood Gardens, Hadleigh, Benfleet, Essex SS7 2SH

MAINTRACK MODELS, 79 Queen Road, Hastings, East Sussex TN34 1RL*

PP AEROKITS, 9 Bath Buildings, Montpelier, Bristol BS6 5PT*

RESITECH, Unit 6, 1B Packington Square, London N1 7UA

TOAD RESIN, 152 Godstone Road, Caterham, Surrey CR3 6UB.

Notes:

Resitech does not market individual etched sets, but does include metal pieces in some of its other projects, kits, conversions, accessories, etc.

* Companies produce both individual metal pieces as well as including them in other products within their range.

**Gary Madgwick recreates one of his favourite
colourschemes of 1994**

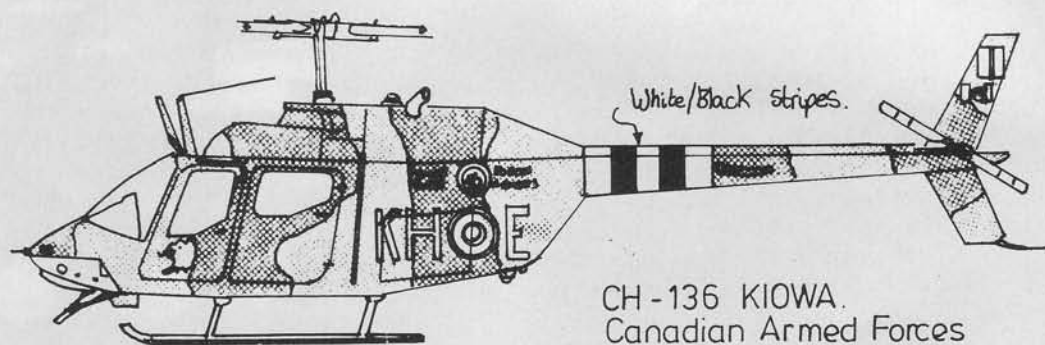
Modelling the Italeri Bell OH-58 Kiowa

One of the highlights for me last year while covering the D-Day celebrations was the arrival in the UK of Canadian Armed Forces helicopters with D-Day stripes and markings.

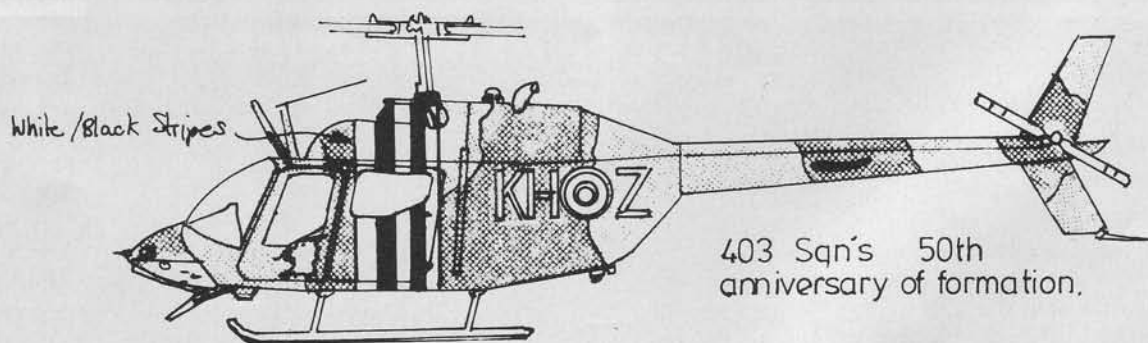
I like modelling helicopters and often feel that the major manufacturers should do much more for this aspect of our hobby. One of the best kit manufacturers of helicopters is the Italian firm of Italeri, whose kits are imported into the UK by RIKO. Italeri produce a couple of Kiowa kits – the OH-58D Kiowa Warrior and the OH-58A Kiowa, both to 1:72nd scale. ESCI/ERTL also produces a 1:48th scale kit and the

notes below can also be used as a basis for modelling in this larger scale. I intended to use the M&E conversion set but found this was not required in the end.

Making up the kit was nice and easy, especially after the trials and tribulations of the Goshawk last month: it only took about a week's worth of evenings to complete. This Italeri kit represents great value for money and is of such quality that it is hard to fault. The decals came either from Modeldec standard sheets, Arrow Graphics or my own decal bank. In total I spent no more than £5.00 on this model, including the base board.



CH-136 KIOWA.
Canadian Armed Forces
403 Sqn. D-Day marking 1994



403 Sqn's 50th
anniversary of formation.

Dark Green
FS 34097

White

Post Office Red
BS: 538

Black

Light Green
FS 34079

Yellow

Roundel Blue
BS: 110

Grey
FS 35237

Drawing by
Gary Madgwick

© 1995

NOT TO SCALE

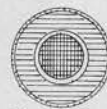
ARMED
FORCES



Red lions
head on doors
with white outline



Fin Flash



Type C1 Roundel
18 inch



HISTORY

The initial design of the Bell Model 206 Jet Ranger began as far back as 1960 when the US Army held its first LOH (Light Observation Helicopter) competition. Although the Hughes OH-6 Cayuse was finally selected, Bell did not give up and went back to the drawing board to improve its initial design. The company came up with the five-seat prototype of what is now known as the Model 206A Jet Ranger.

First flown on 10th January 1966, the helicopter was ready for the second LOH competition which was held the following year following delivery problems with the OH-6. This time it was selected as winner and was ordered by the US Army in March 1968.

The rest of the tale is really history as the Model 206 has become one of the best selling small helicopters around the world and is in service with both military and civilian users.

INTO SERVICE

Deliveries to the US Army under the designation OH-58A

Kiowa began in May 1969, just over a year after it was selected. The helicopter was soon in service in South Vietnam, when it was used by both the US Army and the Australian Army Air Corps. Over the next five years over 2,200 aircraft were delivered to the US Army with follow-on orders for further helicopters being placed in 1973 and during the 1980s.

The Canadian Armed Forces ordered 74 Kiowas in 1971 and these are locally designated as CH-136s. Other users of Kiowas include Austria, Royal Australian Navy, Australian Army, Italy, Spain, Israel, Sweden and many other Asian, Middle Eastern, South American and African countries.

The US Navy also flies the TH-57 Sea Ranger which will be the subject of a future article within our series on modelling US Navy training aircraft.

CANADIAN KIOWAS

The Canadians also use the Jet Ranger as their standard helicopter trainer with No.3 CFFTS based at Portage La

Prairie – these fourteen examples are designated CH-139. The Jet Rangers are finished in a smart green and yellow scheme although one or two have also been seen in the white United Nations scheme with Dayglo panels.

Since entering Canadian service the CH-135s have worn a couple of different paint schemes. At first they had a grey and green scheme similar to the original RAF Puma fleet while more recently this have been toned down with a light green and dark green paint scheme and low visibility markings.

The D-Day Kiowas both wore in the later low-viz scheme, much brightened by the addition of gloss white and black stripes, together with 18-inch World War II Type C1 roundels and 18-inch white codes. They came from No.403 Squadron which used its 'KH' codes originally carried in 1944 by its Spitfire Mk.IXs.

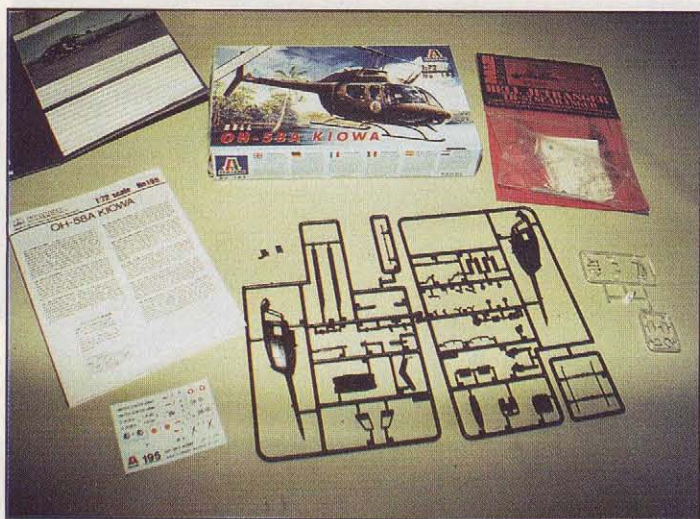
Over the years No.403 Squadron aircraft have worn variations on this theme for various anniversaries and the unit has also painted some of

its CH-135 Twin Hueys in matching schemes.

All Canadian CH-136 Kiowas are operated by the 10th Tactical Air Group (10 TAG), which comprises three Tactical Helicopter Squadrons and one Operational Training Squadron together with another two Air Reserve Wings, each of the latter having two squadrons.

CH-136s mainly operate with the Army and are usually located at Army bases while five Kiowas operate with the AETE at Cold Lake for test purposes. All the Canadian Kiowas have a weapons capability and can often be seen carrying small rocket launchers, which are used principally for marking targets.

By the end of the decade most of the Kiowas will have been replaced with the newly ordered Bell 412HP (to be known in Canadian service as the CH-146 Griffon). This will leave the Canadians with no small light observation helicopter and it will be interesting to see whether another small chopper is eventually ordered.



THE MODEL

The basic OH-58 kit comes in Italeri's series 1 range and retails at about £3.25. It comes in an attractive box with nice artwork on the front and colour information on the rear.

Full construction details are given on the good instruction sheet which also provides full FS colour codes, where applicable, for both internal and external use.

There are 53 nicely moulded parts in green plus nine transparent pieces. The quality

pedals were constructed and a new rear bench seat added – this was cut down from a Lynx seat.

Parts 7 and 8 were then glued together and detailed before adding and a new, larger instrument panel was made from plastic card and filler. All of the internal framework areas were painted Xtracolor X403 (FS36231) grey, while the seats were painted green and had off-white seat belts added.

The instrument panel was also painted grey with Reheat

and all joint line, holes and blemishes were filled.

After a careful sanding the kit was ready for the next stage of detailing. First, part 31 – the tail gear shaft – was glued and set aside to dry.

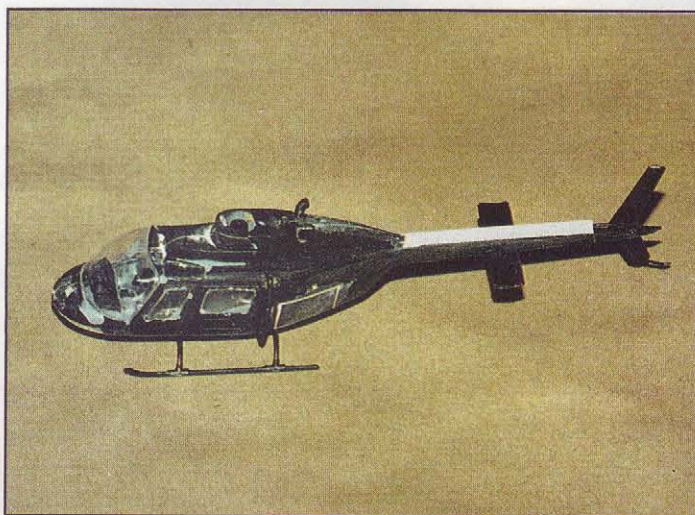
Canadian Kiowas have a cover over the shaft up to the last link. I made this from thin strips of micro strip and when dry the cover was filled and sanded. The tail, rear rotor gear (part 32) and parts 25 to 26 were now added, together with the skids and side bars. I was going to make new side bars but these are a very odd shape

this particular version and were henceforth relegated to the spares box.

PAINTING

The rear tail boom was the first area to receive detailed attention – this was sprayed white and when dry masked to take the black.

As mentioned before, the Canadian Kiowas are painted in a two-tone green scheme. After careful study of all the information and the IPMS Color Cross-reference guide I came up with FS 34097 (Humbrol 105 or Xtracolor X115) and FS 34079



– I eventually resorted to thinning down the existing ones.

PART 3

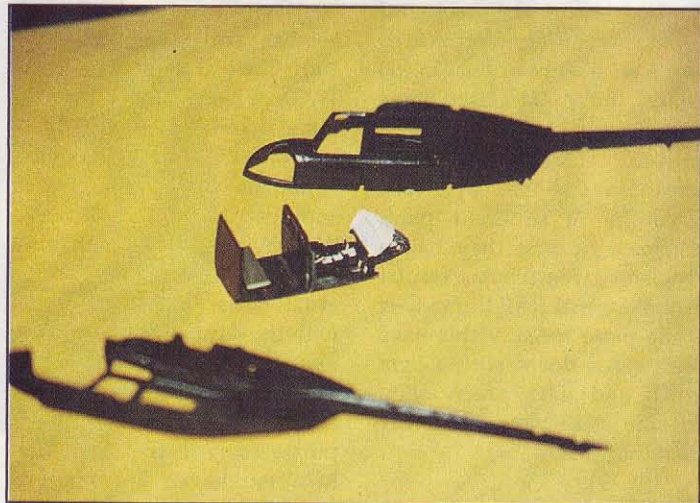
After a final clean up and the addition of the clear parts the kit was ready for painting. The cabin front roof windows (parts 40 and 41) were first coated internally with Tamiya Clear green Acrylic X-25. All the aerials, rotors and small parts were left off until after painting. Part 24 and all the armament were not needed for

(Humbrol 116 or Xtracolor X110) as the two nearest greens (Any further help on identifying these colours would be most welcome.)

These colours were hand brushed on due to the size of the model and when dry looked quite close to the real thing. The exhausts were painted a burnt copper colour and the rotor and gear was painted light grey and silver with black blades top and bottom – the tips are yellow.

DECALS

The main white codes and roundels came from Modeldec



of the moulding is excellent with no flash or warping apparent on any part.

PART 1

The first area of construction was the cockpit. Parts 1, 4 and 5 were glued together and then when dried detailed with plastic strip and rod to look a bit more like the real thing.

The main area was part 4, to which various lengths of plastic rod were glued horizontally. New rudder

decal instrument panels added under a new thin plastic sheet with the instrument dials pre cut. Parts 11 and 12 were also added at this stage and the two exhausts were drilled out before being added to the fuselage.

PART 2

The two fuselage halves were glued together and the doors added. When dry the old moulded navigation and formation lights were cut off



sheets Nos.58 and 41 respectively, with the fin flash from a Harrier GR.7 kit decal and a hand-painted thin white strip. The No.403 Squadron door badges were painted onto clear decal film after being traced from a photograph. The badge consists of a red lion's head on a white background – the lion has a black eye and blue tongue.

Arrow Decals' low-viz Canadian roundels and Armed Forces lettering was attached either side of the main fuselage above the WWII roundels and the Canadian fin flashes were added below the RAF flash.

A few small black stencil markings made up the remainder of the decals.

After the decals had been left to dry overnight a coat of JP Acrylic coating was added to give



the required result over the main areas. The D-Day black and white markings should be left in a gloss finish.

FINISHING

All the airdials, wire cutters and rotors were now fitted and painted, together with any touching up and the final items to fit were the red Bluebird lenses to the top and bottom of the fuselage, together with red and green navigation lights on the tailplanes, courtesy of Premier Plus.

I loosely fitted the main rotor housing as it is then easy to pack the kit without damaging the very fragile parts. The main rotor assembly also sits at about the

right position as seen on the full-size helicopter.

The completed kit was added to a pre-painted helicopter landing area board and will be completed in my usual style of displaying finished kits, once I find the time!

This was a lovely little kit to make and I can recommend it to all helicopter nuts. The D-Day markings make a rather drab scheme brighter and I was really pleased with the finished result. There are a few other No.403 Squadron special schemes I will be making, including a Kiowa with the black and white markings displayed around the fuselage, and the CH-135 Twin Huey in D-Day markings.

My thanks to Dick Ward, Mr Modeldecal, who sent me the 18-inch roundels I needed in a rush, as usual!





ON INSTRUMENTS

Peter Cooksley takes a look at all those knobs and dials

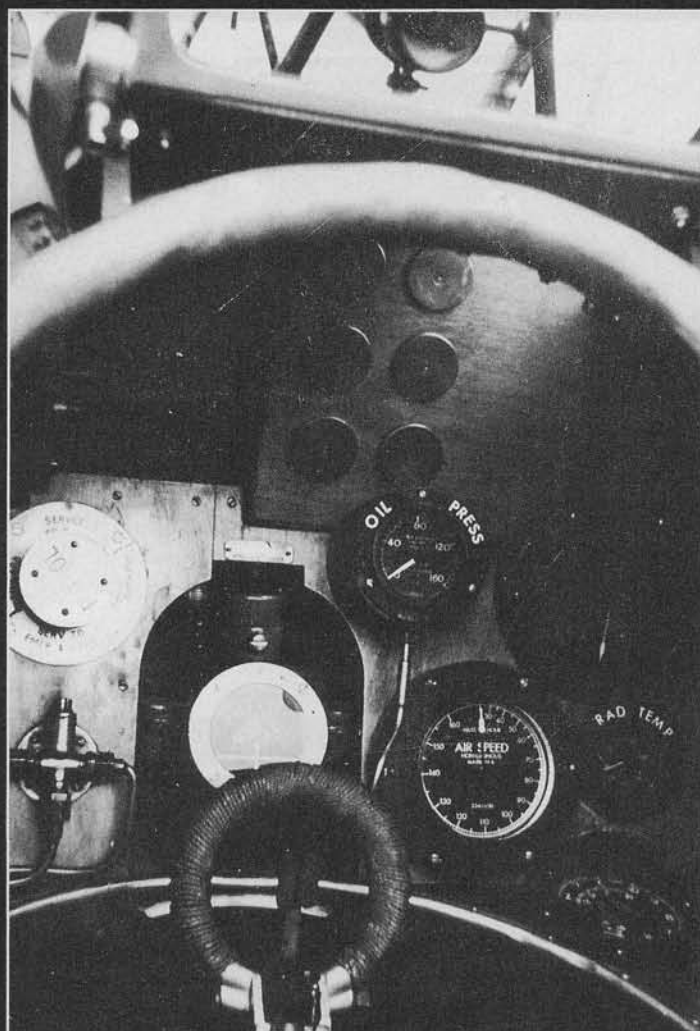
From almost the earliest times, man, while navigating a featureless void had constructed instruments to help him, the very earliest being the simple splinter of lodestone suspended in an earthenware bowl that the Chinese used as a compass.

In the same way, the introduction of powered flight over any appreciable distance called for instruments for guidance, once again, a compass being the immediate requirement.

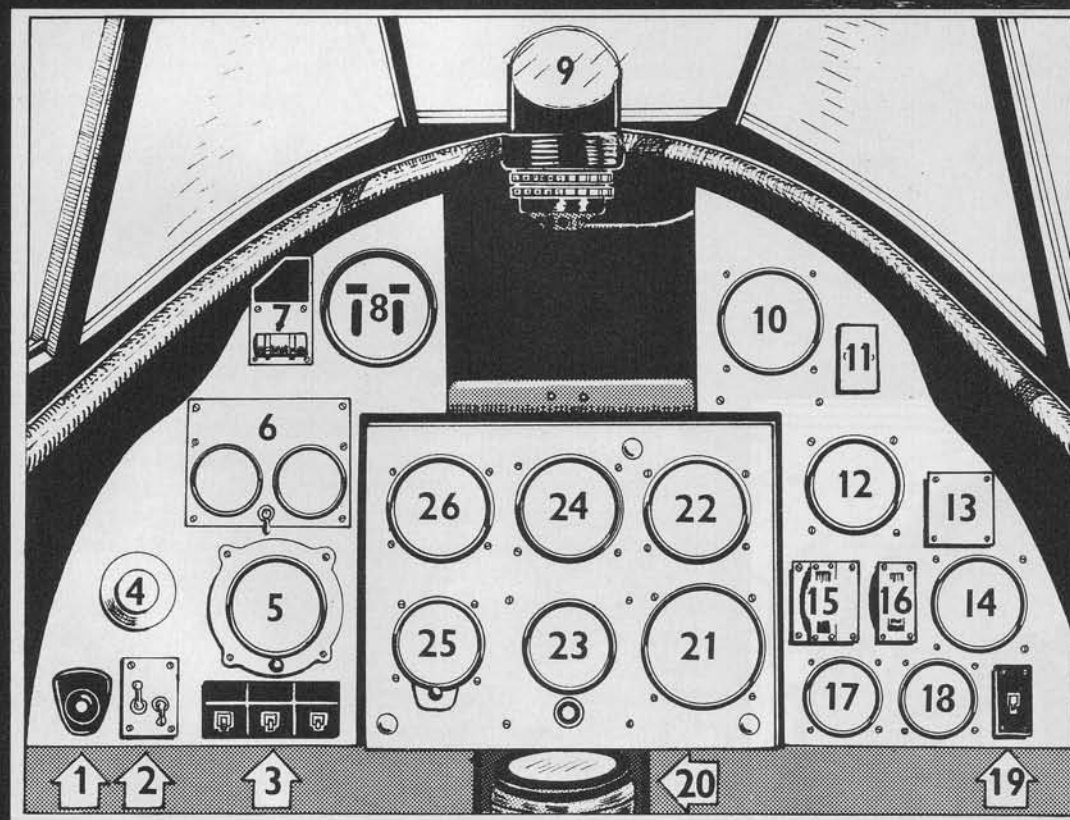
Not surprisingly, these artificial aids were not at first neatly grouped together but were bolted to any handy part of the structure, but it was not long before manufacturers realised that congregating these at a single focal point was

desirable, so that prefabricated instrument panels were made available.

These were thick and comparatively clumsy-looking metal boxes with wide-rimmed instruments on their front, the whole being either a silver-grey self-colour or a dull bronze finish. The largest of these was manufactured by what is now Smiths Industries Ltd (then S. Smith & Sons Ltd, of Great Portland Street, W1) and presented a cross-level, rev counter, altimeter, ASI, clock and climb indicator. Weighing a mere 7½ lbs, this was available with either black or white face dials and was more comprehensive than the Elliot panel which contained a watch, altimeter, rev counter and ASI.



Part of the instrument panel of an SE5a with the Pioneer compass prominently displayed in the centre. Small transparent panels illuminated the board, throwing into prominence the set of six Very cartridges at the top right. (Author)



Key:
1. Self-starter
2. Main magneto switch
3. Light switches
4. Emergency cut-out
5. Clock
6. Oxygen regulator

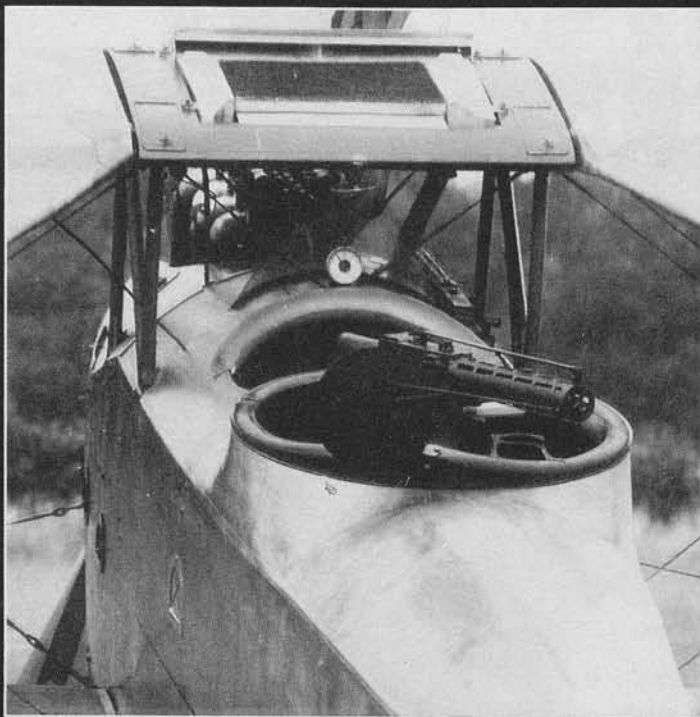
7. Undercarriage and landing light
8. Undercarriage warning light
9. Gun sight
10. rev counter
11. Gun sight switch
12. Boost gauge
13. Fuel gauge switch

14. Fuel gauge
15. Oil pressure
16. Fuel pressure
17. Oil temperature
18. Radiator temperature
19. Starter magneto
20. Compass

Only the early aircraft that survived into the period of World War 1 still retained instrument displays of this type, their place being taken by wooden boards across the pilot's lower field of vision now with wide-rimmed dials which were grey in colour, indicating tinned brass and set in boards left natural wood

The instrument layout of this early Hawker Hurricane is dominated by the six dial blind flying panel in the centre. The board is diagrammatically represented here – in fact it was black with black-faced instruments.

21. Turn and bank
22. Rate of climb
23. Directional gyro
24. Artificial horizon
25. Altimeter
26. ASI



Instruments were not always confined to a board in the early days as indicated by this small, white faced dial inside the windscreen of this German LVG CV. (Author)

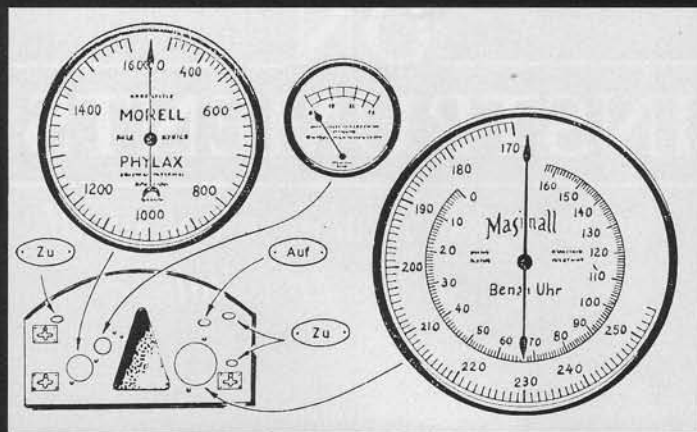
finish, polished and varnished.

Soon these early boards were replaced by others finished a non-reflective black containing black faced dials and dominated, usually in the centre by the prominent Pioneer compass, a fairly large piece of equipment bolted to the front of the board and not inset like the various dials, which was designed to be read from the front and not above as were aircraft compasses later, as are those of the naval type.

Most of these instrument boards were the site of two items quite unfamiliar to us today, the fuel flow indicator, which looked like little more

than a vertical glass tube, and the oil pulsator, a small elongated glass dome shaped rather like a miniature of those transparent covers one sees over Victorian clocks! Also in evidence either on the board proper or even outside the cockpit was one or more ignition switches, this being nothing more than a version of the brass, plain or reeded, tumbler switch with a white porcelain back intended for domestic use.

As night flying advanced, manufacturers gave increased thought to means of illuminating aircraft instruments and the resultant



Instruments on the stained and polished board of a Fokker E.III monoplane of World War 1 vintage.

tendency was for small, shaded individual lamps to be mounted externally to light each dial separately, these being on hinged mountings. Internal illumination came later, but a step in this direction was made with the introduction of luminous calibration by means of luminous paint or radio active compounds which were painted on, often to the detriment of the usually female workers with the passage of time.

These measures were no doubt in part dictated by an attempt to save weight, since 8-12 lb was regarded as the total advisable weight for aircraft instruments.

Dials with black faces soon became the order of the day except in Europe where white dials continued to be favoured, in Germany frequently with a narrow, black bezel that gave them a distinctly 'modern' appearance, a feature to be found on such types as the Fokker Eindecker, a design which not only had its compass neatly tucked away behind a triangular hole in the centre of the wood finish board, but had its aneroid-type ASI carried within the pilot's field of vision in the upper surface of the starboard wing root. An illustration that not all instruments were set neatly in a board. Indeed, perhaps the best illustration of this fact at the time was the various French Nieuport designs that lacked any form of instrument panel, the various dials being fastened to convenient parts of the structure.

There was very little change in either instrument design, or

the way in which they were displayed during the years immediately following the end of World War 1, and military practice tended to be followed in the civil designs which proliferated at the time, although it is possible to discern a tendency for natural metal brass finishes to the, still wide, instrument rims. These, if polished, looked well in the varnished wood finish boards of the time.

Indeed, there was little to mark the move into the 1930s when many aircraft instrument boards were grey and it was possible to note on service aircraft a mixture of bezel type – wide tinned brass or narrow and black, although for some reason, at the time when the later predominated, it was still fairly commonplace to have rev counter and fuel gauge rims in the former style.

However, a change was not far off with the introduction for the RAF of the blind flying panel, a standard group of the six essential instruments in a separate board, separately mounted on rubber in the centre of the main panel so that it stood a little proud, although perhaps the Gloster Gladiator was the only example of the older type of fighter concept to have this addition. It would also have been alone in seeing the introduction of a 'cockpit green' finish for the interior superseding the former generally metallic and silver-grey appearance which had in turn replaced the varnished wood appearance of the earliest period.

Instrument boards like the dials themselves were now



The hooded instrument panel of a Scottish Aviation Bulldog is also light grey with its dials grouped towards the port side. Small cylindrical instrument atop the display is the compass. (Author)



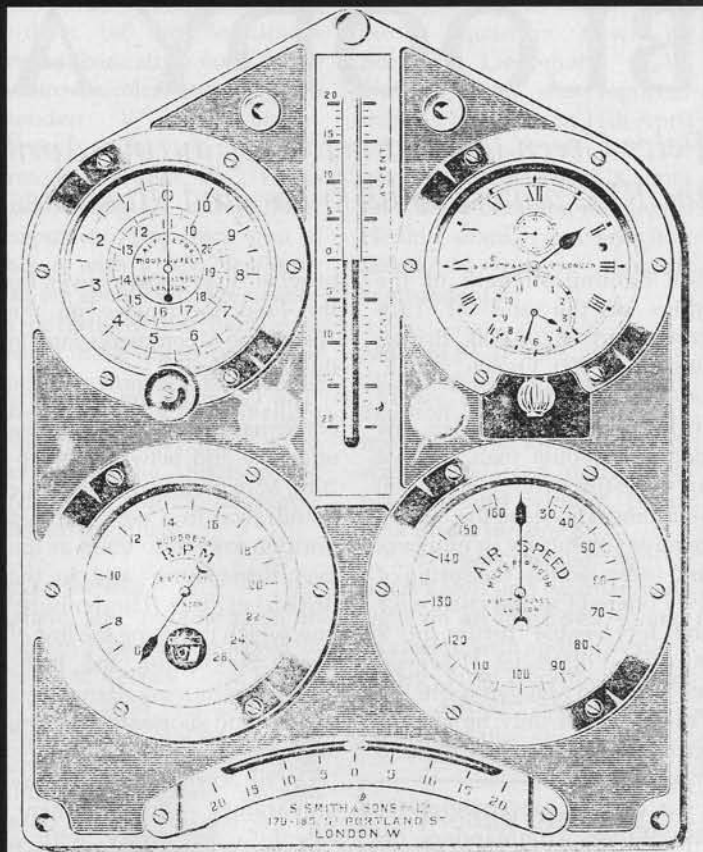
The comparatively simple, mixed display of a Hawker Hector. (Author)

entirely black, but that is not to say that cockpits from the late 1930s and throughout the years of World War 2 lacked colour entirely. Oil temperature and pressure gauges had bright

yellow rims or bodies, while the operating handles for emergency systems were red, as was the dial of the boost gauge and a triangular portion of the face of the oxygen flow



Instrument panel of a Piper Cub. (Author)



The form of instrument panel in use immediately before the outbreak of World War 1. This was marketed by S. Smith & Sons and contained six instruments. A similar model was sold by Elliotts.

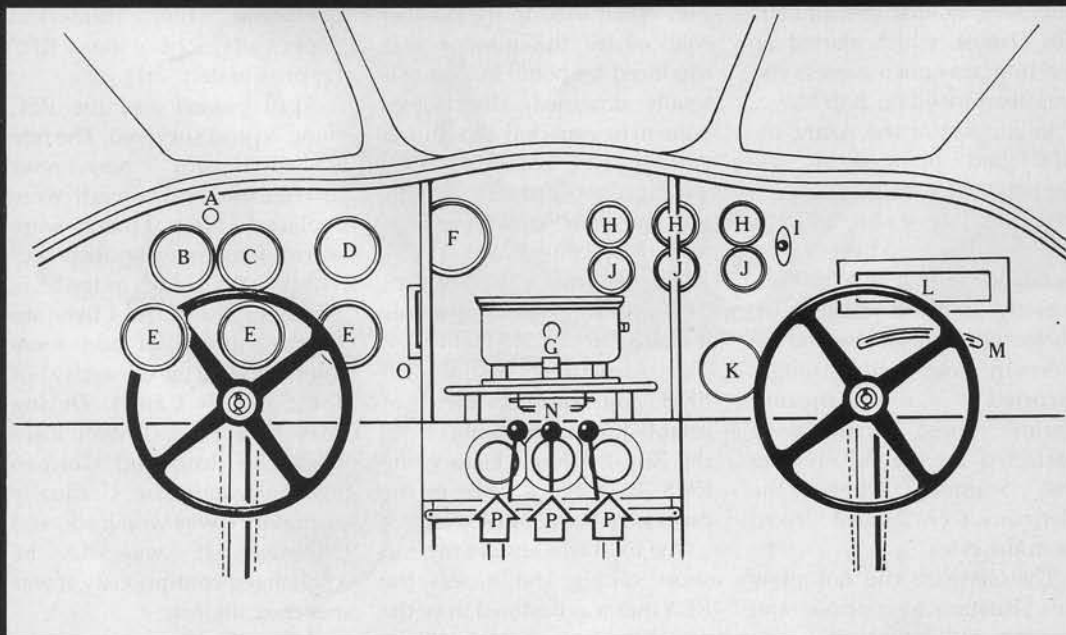
gauge dial.

The allegedly restful pastel shade which was 'cockpit green' never extended to the instrument board which remained black throughout, and the black internal finish used for all RAF night flying aircraft, with shaded lamps for

internal illumination became the standard inside finish with the dawn of the jet age by which time the blind-flying instrument board on such types as the Gloster Meteor had been augmented by a further three dials, and a machmeter was added above beside the gyro gunsight.

Now all is changed including the colour of the instrument panel which is grey, while vanished also is the long used 'bowl' type compass with its one-time grey and later dull black lower body. This has been replaced by a small cylindrical instrument with its vertical face. A great distance in time from the impressive brass Pioneer compass of the early years which was sufficiently sturdy for it to be mounted in the trailing edge of the upper centre section of a Bristol Fighter!

Long-range layout, that of Sir Charles Kingsford-Smith's Fokker F.VIIIA3/m 'Southern Cross'.



Fokker 'Southern Cross'

- A. Cockpit light
- B. Altimeter
- C. ASI
- D. Turn and bank

- E. Rev counters
- F. Altimeter
- G. Compass
- H. Oil pressure

- I. Cockpit light
- J. Oil temperature
- K. Battery selector switch
- L. Light switches

- M. Cross level
- N. Magneto switches
- O. Inclinator
- P. Throttles

BLOODY APRIL

Peter Green looks at activities during April 1917, when the German Air Force brought the RFC almost to its knees, and illustrates three of the combatants in colour

The fighting strength of the allies at the end of 1916 comprised 1,200,000 British and 2,600,000 French which, when the Belgians were included gave a total of just under 4 million men, against an estimated 2,500,000 Germans. This gave the allies a relative superiority in numbers and indicated that the spring of 1917 offered the best chance for the foreseeable future of a successful offensive. However, according to Marshal Joffre the French would only be able to maintain the strength for one more large battle.

So, on 18th November 1916, the Allied commanders in Chief met at Chantilly to plan their strategy for 1917. A constructive proposal for a joint Anglo-French-Italian offensive in Italy designed to defeat Austria was rejected in favour of a further offensive against the Germans who, it was accepted, were in difficulties on the Western Front. With the Allies' numerical superiority, this would be the time and the only place able to deliver a decisive result.

The original plan proposed by Marshall Joffre was for the British to launch the main attack by a continuation of its Somme offensive to the North of the old battleground and for the French to provide the supporting role to the south.

However, the French government had lost confidence in Joffre and he was replaced by Marshall Nivelle. Nivelle was placed in overall control of the forthcoming joint operation with Field Marshal Haig being sub-ordinate to him.

It was finally agreed that the offensive would start at the beginning of April, when the British would attack with their 4th and 5th Armies on the south side of the Gommecourt bulge, whilst the 3rd Army attacked on the north side from the direction of Arras. This was intended to

provide diversionary cover for the French offensive on the Aisne, due to commence later in the same month.

The Germans anticipated a continuation of the Somme offensive and between the 16-20th March staged a strategic withdrawal to a new fortified position known to them as the 'Siegfriedstellung' and to the British as the 'Hindenburg' line, which ran along the line of Arras, St Quentin and Bally, thereby removing dangerous salients and shortening the line to 75 miles.

On 9th April, after a five-day preparatory bombardment, Allenby's 3rd Army, with a Canadian Corps from the 1st Army on its left, opened the offensive with an attack on both sides of Arras. The attack was successful and with the help of tanks the German line was broken and penetrated to a depth of 12 miles. The Canadians captured Vimy Ridge but by the middle of the month the British advance had run out of steam and the offensive was finally stopped on 11th May. The French offensive against the Chemin des Dames, which started on the 16th, was not a success and was abandoned on 20th May.

In support of the Army, the RFC had planned to use similar tactics to those which had been successful in 1916, when the Allies had introduced offensive patrols, thereby controlling the air above the battle and behind the German lines with strongly escorted reconnaissance flights. These tactics were perfected by the British over the Somme, where the Germans were almost driven from the skies.

The Germans did not allow this situation to continue and countered by introducing:

(a) New and improved types in the shape of the formidable Albatros fighters, particularly the D.III and various types of Halberstadt.

The Albatros fighters were the main instrument of success and with the armament of two machine guns they were able to deliver twice the weight of fire in half the time as the contemporary fighters used by the British, i.e. Sopwith Pups, Triplanes, Nieuport 17s and Spad S7s.

Although the rotary-engined Sopwiths and Nieuports with their lighter wing loadings were more manoeuvrable, the faster, more powerful Albatros could dictate where and when combat took place. The new generation of German fighters totally dominated the major types still employed by the RFC for reconnaissance, bombing and artillery co-operation – the BE.2 and FE.2. Both types were accepted as obsolete but, despite mechanical and structural updating, further improvement could not be expected and both types were forced to operate in a combat environment beyond their capabilities. Whereas the FE could mount some kind of credible defence, the BE was severely restricted in its field of fire. When used in the bomber role where the gunner was sacrificed for bomb load, it was totally unarmed. High losses were to be expected and during April the RFC lost 60 BEs and a similar number of FEs, with the loss of their crews, a high proportion being killed.

The need for a replacement had been foreseen, and it was intended to replace them with the Armstrong Whitworth FK.8 and another piece of establishment thinking from the Royal Aircraft factory, the RE.8. Both types were in the process of being phased in.

The FK.8 was always to be in short supply and it was the RE.8 that was destined to be the major reconnaissance/artillery observation type for the rest of the war.

Another new two-seater was also being introduced,

designed to fulfil the same requirement as the FE.2 – this was the Bristol F.2A. Its true role had yet to be defined and its combat debut was a disaster. However, new tactics would be developed by its crews, which released its potential as a truly great military aircraft.

(b) The German maximised on the advantage that their new breed of fighter had given, by introducing what became known as the 'Circus' system.

Special fighting units were formed under picked leaders and pilots whose function was to move to any part of the front where temporary air supremacy was required. This was supported by an elementary form of early warning system, known as the *Flugmeldedienst*, which was incorporated into the anti-aircraft defences. It consisted of a series of observation posts situated along the front, reporting back to a central control, which in turn was connected by telephone to the Jasta in the area concerned. This in some part helped to overcome the numerical superiority of the RFC (approximately 3:1).

April passed and the RFC hung on and survived. The tide started to turn – new crews arrived and lost aircraft were replaced. New tactics were learnt, lessons were absorbed. The new types such as the SE.5, Bristol F.2A and DH.4 lived up to their potential and were later boosted by the arrival of the Sopwith Camel. During May and June, British losses began to drop and German losses began to rise. Gradually superiority was won back, and although it was to be challenged continuously, it was never again lost.

Being the mainstay of the RFC fighter force, Nieuport losses were high, for instance in the first three weeks of April, 55 aircraft were lost (all

causes) as were most of the crews. The only British fighter with comparable armament was the new SE5 of unknown combat value, which had only arrived in France at the beginning of the month (No.56 Squadron) and were not available in any numbers.

REFERENCES TO THE ILLUSTRATIONS

Sopwith Pup B1777 (below)

Sopwith Pup B1777, was a standard built aircraft of No.4b Squadron. The aircraft is shown flying at a later period than April, i.e. during July-August 1917 whilst on Home defence detachment, but apart from the name is entirely representative of Pups used during the 'Bloody April' period.

FE.2b 4883 (centre-spread)

FE2b 4883 'B1' named *Kookabura* of No.22 Squadron, 14th Wing was based at Chipilly and flown by the Australian pilot Captain H. Rupert Hawkins - who was also 'B' Flight Commander -

with Second Lieutenant G.O. McEntree as observer.

On 26th April 1917 the aircraft was involved in a bombing raid on Bohain railway station. The formation consisted of: lower layer - seven BE2e of No.52 Squadron carrying 112 lb bombs and no observers, plus one FE2b of No.22 Squadron (which was also the leader of the raid); middle layer - five FE2b of 'B' and 'C' Flights of No.22 Squadron; top layer - six Sopwith Pups of No.54 Squadron.

The FEs left the ground at 5.45 pm and were attacked in the Bohain area. In the ensuing fight two FEs were brought down (the only losses) including 4883, which landed at Estree. The 'kill' was claimed by Offstellvtr Sturm of Jagstaffel 5 as his first victory. Hawkins and McEntree were both uninjured and became PoWs.

Notes on FE2b 4883

Built by G.J. Weir Ltd from a batch, serialled between 4838 and 5000, the aircraft was fitted

with a 160 hp Beardmore engine (basically a copy of the Austro-Daimler) and the plain wooden 'V' type undercarriage. The aircraft was armed with two Mk.2 Lewis guns with 47 round No.1 magazines. The front gun is shown with a Mk.2 collector bag for spent cartridge cases - in operational use both guns would have these or similar bags. The front gun is mounted on a No.4 Mk.IV swivelling pillar, the rear gun on a variation of the Anderson rear arch with sliding telescopic tube arrangement.

Source material

Article and photographs on Captain Hawkins appeared in *Cross and Cockade Great Britain Journal*, Vol.3 No.2 (1972). There is a drawing by Alf Granger in the September 1988 edition of *Wingspan*. See also *Early Aircraft Armament*, by Harry Woodman, and *Aeroplanes of the Royal Flying Corps*, J.M. Bruce.

BE.2F 2567 (centre-spread)

BE2F 2567 'Yangstee Valley' of

No.10 Squadron, flown by Second Lieutenant C.W. Holmes, who was reported missing in action on 14th April 1917. This aircraft left the ground at 4.20 am (UK time) on a night bombing mission to Henin-Lietard, from which it failed to return. Aircraft captured intact.

Notes on BE.2F 2567

This is a presentation aircraft. Position and style of inscription not known. A BE2F was a BE2E but with BE2C fuselage and without petrol tank under top wing.

*2567 was armed with a Mk.II Lewis and Norman vane sight on an improved strange mounting with sliding arm.

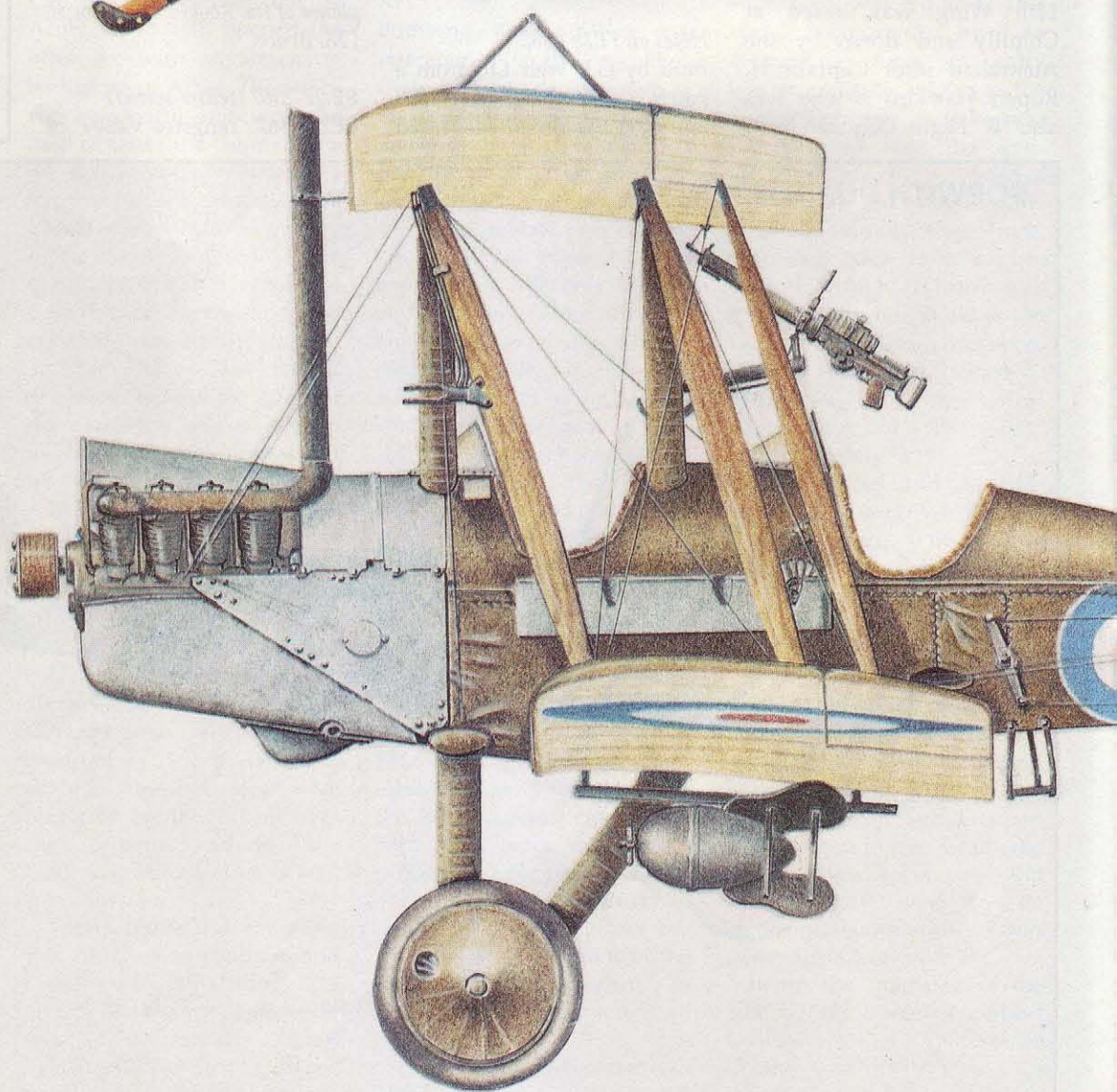
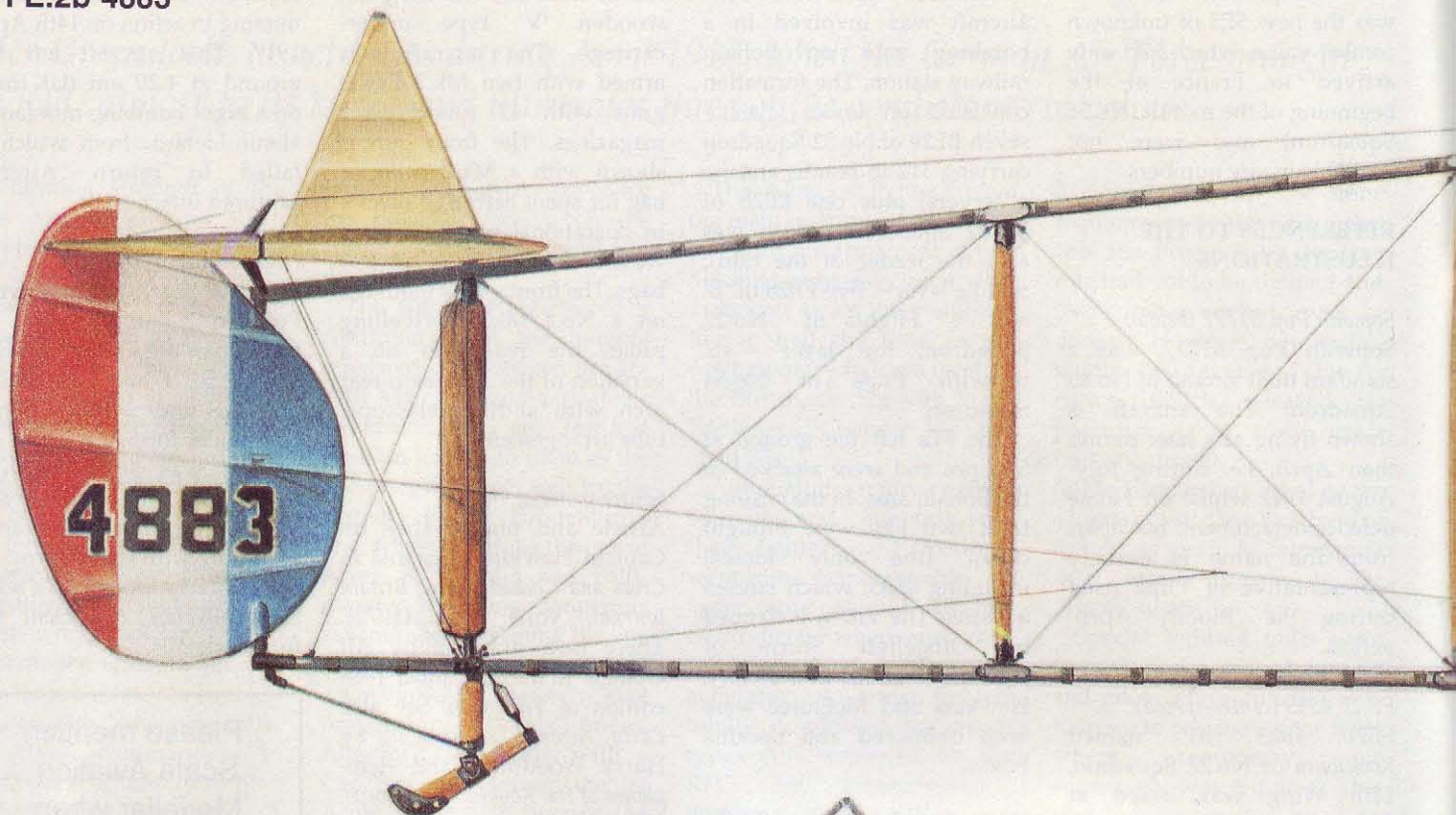
*See Harry Woodman's book *Early Aircraft Armament* for further details.

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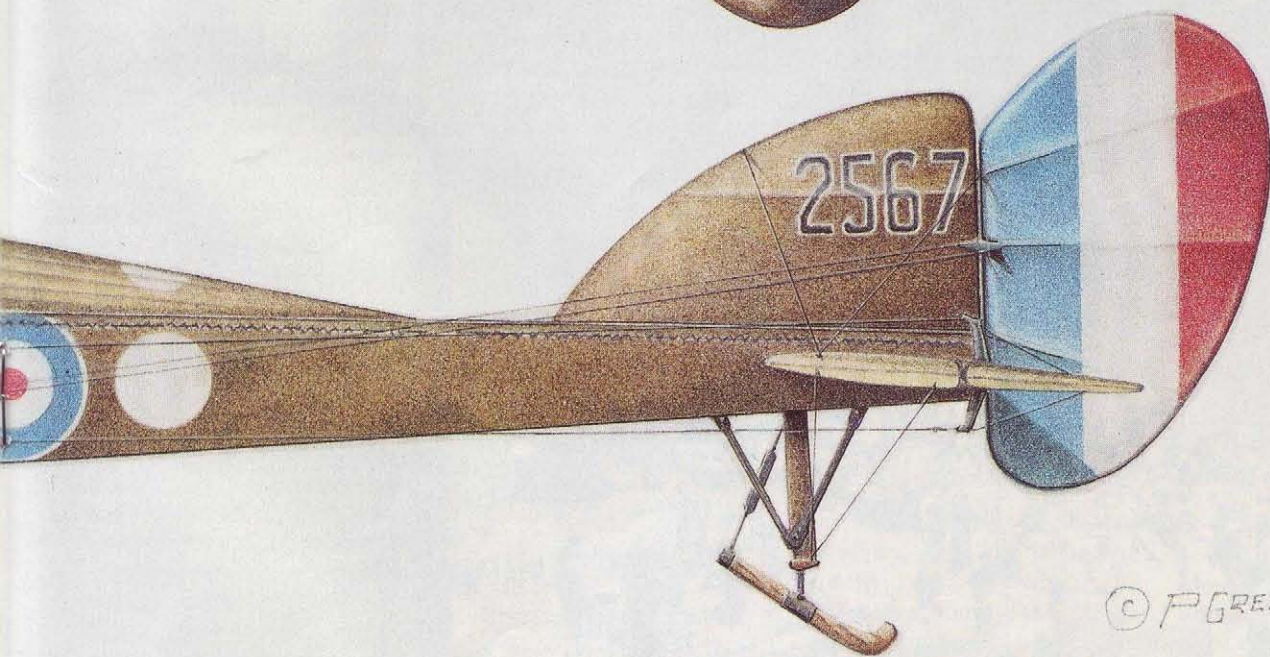
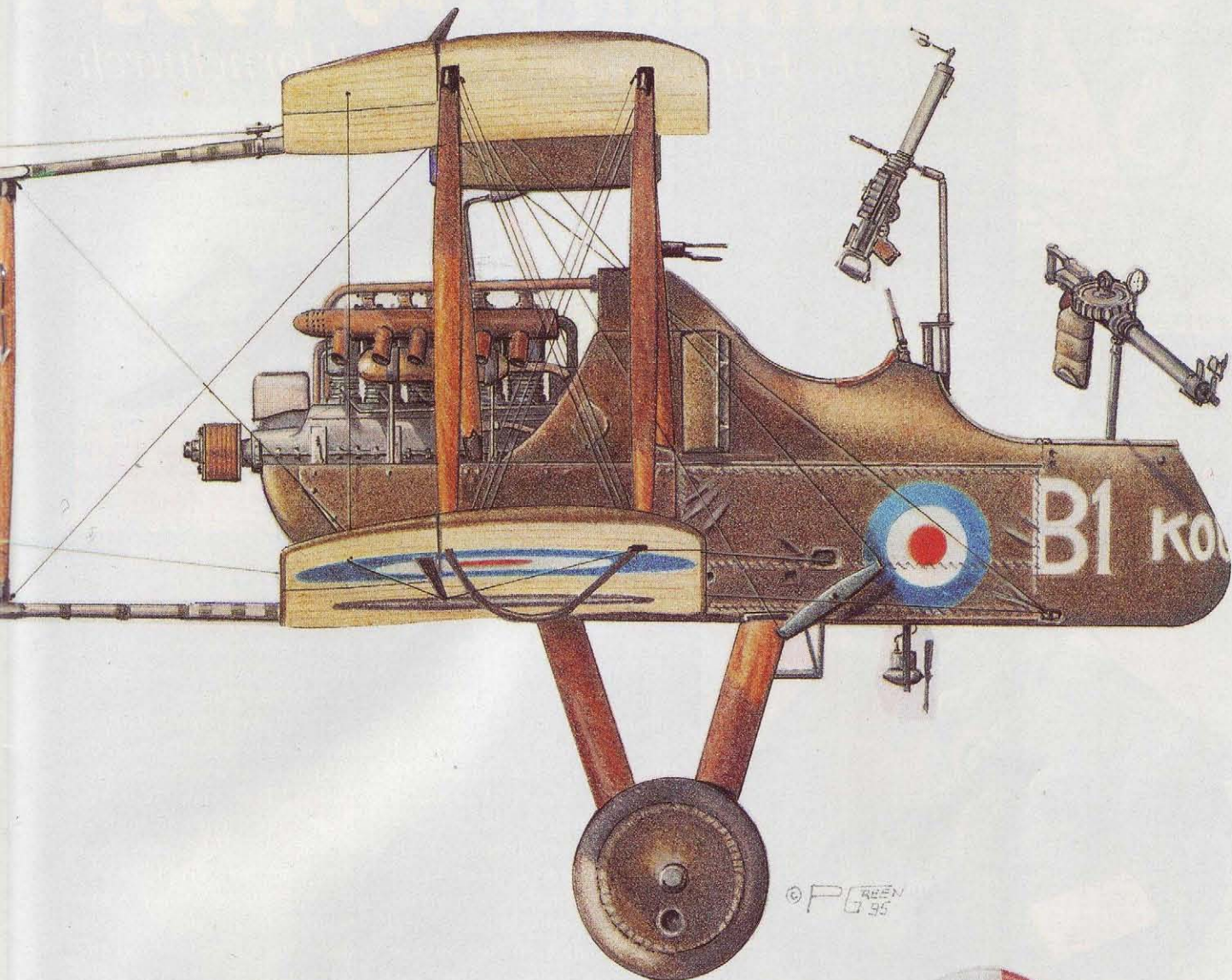
SOPWITH PUP B1777



FE.2b 4883



BE.2F 2567





No sooner have the clocks moved forwards, than it's 'show-time'! One of the first is the Southern Expo, which was held this year on the weekend of the 1st and 2nd April 1995. Now well established at its

SOUTHERN EXPO 1995

Richard Franks reports from Hornchurch

present location within the leisure centre at Hornchurch in Essex, this year's show was my third.

Housed on the ground floor of the centre, the show consisted of many manufacturers as well as club stands. Companies present at the show were (listed anti-clockwise from the main door); Hannants, Maintrack Models, The Aviation Bookshop, Aeroclub, Pilot Models, Melair Models, Pegasus and Blue Max, Four Plus UK, Scale Model Accessories, Samone Hobbies,



Daimler-Benz Project "A"
An unusual German Aeroplane.

For those with a 'what-if' affliction – the Toad Resins Daimler-Benz Project A will feature a three-foot wingspan.



Winner of the 1:48th scale class was this superb Spitfire Mk.I – its detail was breathtaking.

Flightpath, King Kit, I.W. Models, E.D. Models and Tee-Jay (inc Comet Miniatures). The remaining companies were interspersed within the body of the hall and they included: Blue Rider, Magna Models, PP Aerokits, Airfield Accessories, Daco Models, Model Art decals, Proops Brothers Tools, Reheat Models, Toad Resin, Resitech, Paragon, Dynavector, Arba, Falconwood Books, Avia Imports and Strictly Models. The remainder of the floor space was taken up with club stands and a few individuals selling second-hand kits and books. These club stands

included many standard clubs plus IPMS branches, including my own 'home' club: Chiltern Scale Model Club.

One of my favourite parts of any show is a sort through the models for sale under the club tables. This year however, there were a reduced number of such kits. This may be a direct result of people buying less kits, but there was pressure brought by the organizers on these club stands to reduce this type of trade, which is a real shame. The show got off to a really cracking start, with a huge number of people present by mid-morning on Saturday. The numbers of people made shopping difficult, as they were as many as six deep on certain stands, I am therefore glad I did all my buying before the doors opened! Browsing around the stands as I did, showed that there was very little new. There was no sign of the Dynavector 1:48th Sea Vixen, although I do not think it was due to be released at the show (more's the pity). Things that were new included: 1:48th scale de Havilland Hornet from Arba, this is a multimedia kit with resin and white metal parts. It costs £25.00 and you can look forward to a full review of it in a forthcoming

The main hall at Hornchurch was slightly less packed on Sunday – it was difficult to move around on Saturday! (All photos by author)



Four Plus UK had brought in the new 1:48th scale Fokker DXXI from Classic Airframes; this kit has the main pieces as injected plastic but it also boasts etched brass and resin detail parts. When you consider that the entire package costs just £18.95, it's a real bargain. Suffice to say that I was taken by the product and due to the generosity of Stan Overall of Four Plus you can all look forward to a full review of this kit

in a forthcoming edition of *Scale Aviation Modeller*. Aeroclub had a new 1:72nd scale Saro Skeeter (£6.65) and Avro Anson C.19 (£14.50) on sale as well as their new FE.2b in 1:48th scale (£22.50). Chris Gannon was on his Pegasus stand and he had samples of the new five examples of the new five colour lozenge fabric decals in 1:48th scale (£7.49 per sheet). He advised me that they had revised the printing since

New Release Preview

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Fokker D.VI (OAW)

Jaghuufl Kaben (Gans TK), Muntingen 1918. Printed by
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Price £3.50

Fokker Dr.I
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In the pipeline from Blue Rider – Scale Aviation Modeller has reviewed some of these decals in this issue..

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7219 4 x 11.5mm VW Wheels	5.35	48124 P-111 Flaps and Slats (A/D/E/F/G/H/I/J)	16.99
7220 8 x Spanair Machine Guns	1.35	4814 B-17 F/G Prop Governors and Wing Intakes	3.99
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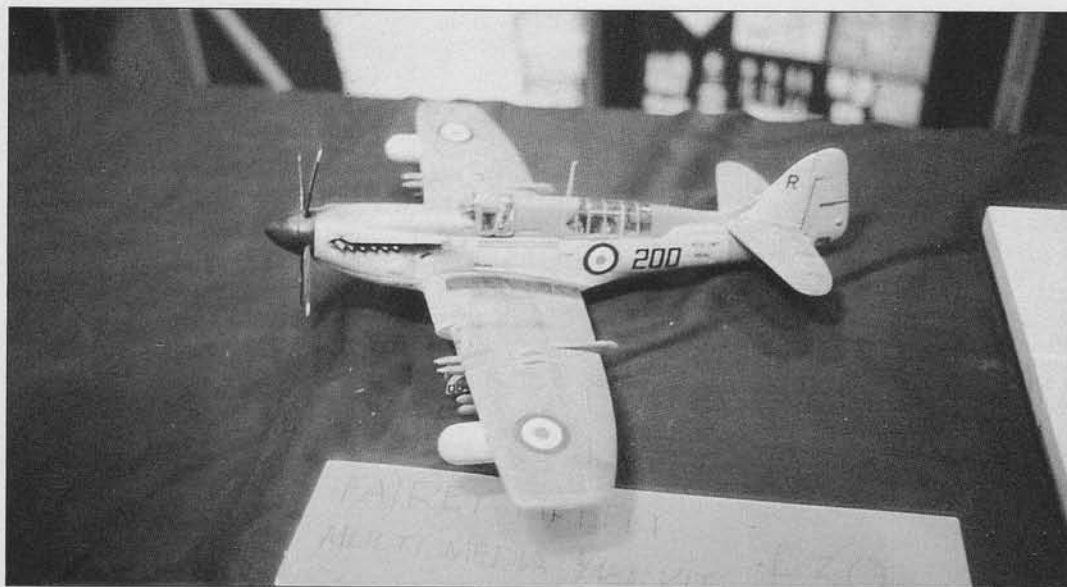
* Indicates etched brass parts are included

the test examples we received as review samples a while ago, so my comments about the intensity of some of the colours are no longer valid – all of that had been toned down. The 1:72nd scale Albatros D.Va and Roland D-II (£9.99 each) were on sale, again look out for our reviews on these kit in the near future. For the future from Pegasus Chris advises me that

Avia Imports are dealing with a new range of resin kits from Belgium. The company PJ Products produce a 1:72nd scale Gloster F8 in either RAF or Belgian markings (£23.00

PP Aerokits' Fairey Firefly kit was on display at Hornchurch. The company's Battle kit should be out by the Nationals in November.

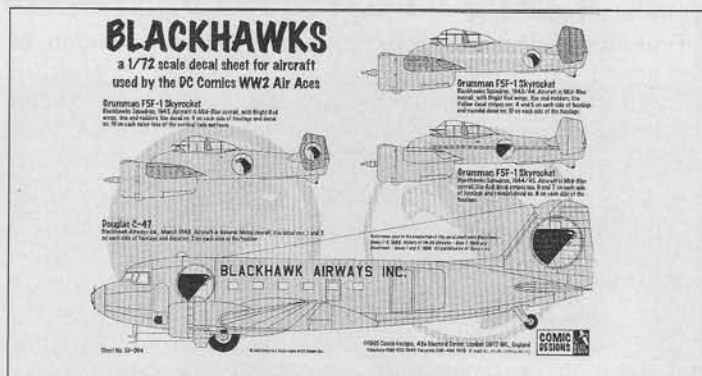
each) and a Mirage 5BA (£13.00) and 5BR (£6.00) conversion. Although the price is high the quality of the product is extremely good, look out for my review of the RAF Meteor in the near future. On the ED Models stand there were a few new bits and pieces within the Airwaves range, mainly accessory sets in 1:72nd scale for British, German, American or Japanese World War 2 aircraft. Planned for April and May release by Airwaves are sets for: Horten Ho 229 (Revell), Sukhoi Su 22M (Italeri), P-61 Black Widow (Airfix?), Arado Ar 240 (Revell), F-82 Twin Mustang (Revell) and A-26



Invader (Airfix). In 1:48th scale there will be a set for the Academy Su-27 and the Italeri F-16. On the Toad Resin stand there was the entire 'Toad' line-



Airfield Accessories stand.



The Blackhawks decal sheet from Comic Designs looks like fun.

up of Luftwaffe 'What-if' models, but the most spectacular information was that their enormous 1:72nd scale Daimler-Benz Project 'A' was nearing completion. Anyone who saw the test version on show at least year's Nationals is aware of this kit's size, if you

didn't let me assure you it is very, very, very big and it has a price tag to match. At £195.95 each, they will not be an impulse purchase! Alongside Toad was Resitech who had their excellent 1:72nd scale TSR.2 kit on sale (£34.99), but they also had their new 1:48th scale Ju 388 conversions for the Dragon Ju 188 kit. These conversions come in J, L or K variants and cost £25.00 each, this reviewer was angling for a sample but was refused, oh well you can't have everything.

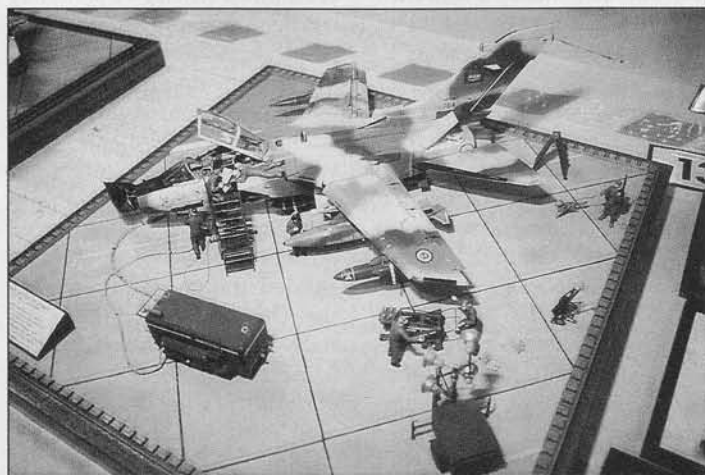
The major new name at the show was Paragon Designs. This is a new company, but one whose products will be familiar to many. The company was set up by Neil Birkill and he was the man who produced the masters for the Xtraparts range. Having a few problems of late, he decided to go it alone and launched the entire range, now marketed under



Second in the 1:48th scale class but winner of both the best World War II aircraft and RAF Trophy, this Blenheim was built from the Contrail kit.

the Paragon label at the Expo. He was a little worried about how the public would respond, but going by the numbers of them around his stand throughout the weekend I am sure his fears were soon allayed. The new range includes most of the items which used to be in the Xtrapart series, plus a few new ones besides. Look out for my preview and article on building two of Neil's conversions in the near future.

Sunday was competition day and entries for the open classes began filling up from 9.30 am. The competition was held on the upper balcony of the leisure centre and there was a really good showing going by the number of models finally entered. Taking photographs was impossible once the judging had finished as the entire area was choked with people, and that's my excuse anyway! The number of people at the show on Sunday was greatly



The superb 1:48th Saudi Tornado diorama entered in Sunday's competition.



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The Pegasus Models listing for 1995/96 - get in quick before they sell out!

diminished from Saturday, consisting of many families, etc., so there was plenty more time to have a look round and pick up a few more 'bargains'. By the end of the show at 5 pm on Sunday I was tired, but I had enjoyed the entire thing, except the 120 mile round trip

each day. I was glad to have the mutual support of the Scale Aviation Modeller stand, plus all the staff from Concept Publishing and our illustrious editor, Sue (keeping an eye on me, no doubt) - too true (Ed!!)

See you all at the Nationals (I hope)!

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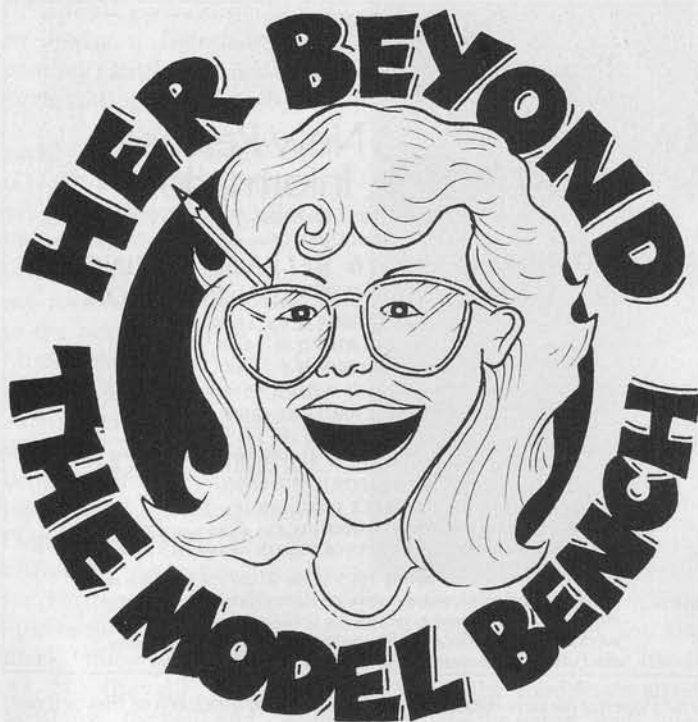
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Once, many years ago, when the Dearly and I first got together, after I had gotten over the initial shock of discovering that there were actually grown men who spent their spare time sticking small bits of plastic together, I made a model.

Well, actually I got to stick one of the side windows in place, but more of that later. You see, I thought that given that the Dearly spent so much time in pursuit of this activity, that the least I could do was to try to discover what the big attraction was. I never did. It's amazing the effect young love can have on a previously entirely sensible young woman, and looking back I can only be amazed at my own stupidity.

If there's one thing you should never do in a relationship it is to try to learn about your partner's interests from your partner, because all you really end up learning about are the things about your partner which in five years time are really going to irritate and if every young couple followed the path I took no relationship would last.

Until this point in our friendship he had been the epitome of the perfect gentleman – opening doors, paying for drinks and generally acting as if nothing I wanted would ever be too much trouble. As you can imagine I

was besotted, then came that fateful day when I decided to have a go at model making.

Initially, the Dearly was as much in favour of the idea as I was. He thought a model-making girl friend who understood the intricacies and demands of the hobby and didn't create about the smell of paint would be heaven. Together (our relationship was still so new that we were still doing almost everything together) we journeyed to a small model shop in a local town and I carefully went round disassembling packaging at every step (and don't shop keepers just love you doing that?) in search of a model that didn't involve military or science fiction stuff and which only had about three pieces in it, because I didn't want to over-reach myself. Eventually I settled on a car. A black one cast in the right colour plastic and with all the chrome-coloured bits already nice and shiny so I didn't have to worry about that. Even the Dearly approved and so it was with enthusiasm that we sat down together at home to build our kits.

I like to learn at my own speed and had decided the best way to go about it all was to follow the instructions and ask the Dearly for advice when I felt in need of it. It was then that one of his less endearing traits made its presence known.

He finds it physically impossible to prevent himself offering unsolicited advice. It is one of my less endearing traits that I have no tact at all when dealing with such helpfulness and telling people to shut up can spoil the atmosphere a bit when you are sharing a modelling bench. So can having an experienced modeller peeping over your shoulder and tutting every time you attempt to do anything. Inevitably I made a mistake, admittedly it was with the first pieces I tried to join together, but did he have to look so pleased about it? I had cut out the side window to go in the front of the car and when I had finished cutting it out it wasn't as big as the space in the frame which it was supposed to fill. I was chuffed, I don't think! I asked for his assistance in rectifying this.

I don't remember how we actually did but I do know that I was allowed to stick the window in place – I remember it quite distinctly because it was the last bit of model making I ever did. Glue is very unruly stuff. It can get everywhere. It got onto bits of the clear plastic it shouldn't have and left it looking a bit strange.

It was also at this point that I realised just how protective he could be about his model-making stuff. He couldn't bear

to see me handle his precious knives and files: it was simply unbearable for him. Each had to be carefully inspected when I had finished with it to see just how much damage I had done and wherever the opportunity presented itself I was told to use the second best of them all. Some of those blades were so blunt I could have gotten the pieces off the sprue more cleanly by jumping up and down on them in Doc Martens (and don't think there haven't been times when I've seriously considered the impact of such footwear on his collection since). I maintain that this is one of the reasons why my attempt at model-making was such a disaster.

Needless to say, I rapidly lost interest in the whole business and, when I finally handed the entire kit over to the Dearly to complete, his sighs of relief were audible, as were his assurances to his utensils that he would never, ever let a novice loose on them again.

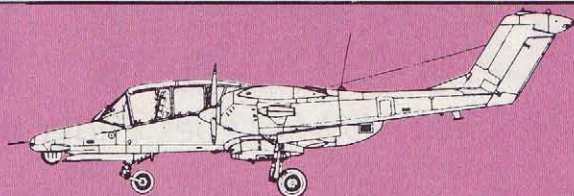
Since then I have deemed it wise to avoid his modelling area if our relationship is to survive, and when the artist is at his task any communication is conducted through tapping on the floor of his room. And I am afraid to say that I'm 99 per cent certain that the Dearly prefers it this way.



Cartoon by Andrew K. Batchelor

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FOKKER DVII *Richard Franks*

Scale Aviation Modeller goes under the skin of the RAF Museum's Fokker DVII

Following on from his successful Dr.1 Triplane, Anthony Fokker continued to further develop his single-seat fighter. Development began with Versuchsmaschine (Experimental type) V8 which was a triplane with two additional wings aft of the cockpit. This was soon discarded and replaced with the V9, a design similar to the Dr.1, but with 'V' interplane struts. Further development led to the V13/1, which with its 'N' interplane strut was produced in limited numbers (59) as the Fokker DVI. This was the beginning of development of inline powered fighters by Fokker, which would ultimately lead to the DVII.

During early 1916 Fokker was given patent and engineering services by Villehad Forssman, a Swede and it was via Forssman that the German plywood manufacturer, Bruning & Sohn AG offered to make veneer covered plywood wings for Fokker, free of charge. Built to Fokker's own requirements these wings were lighter than the fabric covered alternative. This experience led Fokker to continue the development of

the all-wood internally-braced, cantilever wing. The robust design was later to form the strong wing fitted to the DVII. In September 1917, Fokker was aware that the Inspektion der Fliegertruppen (Inspectorate of Aviation Troops) was planning a fighter competition in early 1918. He therefore instructed the experimental shop to build a prototype biplane powered by the 160 hp Mercedes inline engine. The experimental shop was, at the time, under the control of Reinhold Platz, a welder-turned-designer who believed in reducing the structural complexity of any aircraft to a minimum. The first real Fokker DVII was the V XI (later V11), work number 1883 and it was joined by a slightly larger airframe, designated the V18, which was also to take part in the forthcoming competition.

The modified V11, now called the V11/II and V18, along with six rotary powered designs, were entered in the fighter competition by Fokker. The competition was held at the Inspektion der Fliegertruppen (Idflieg) test centre at Aldershof between the 20th January 1918 and the 12th February 1918. From the

SPECIFICATIONS

Powerplant: Mercedes 160 hp DIII or Mercedes 175hp DIIIa or BMW 185 hp IIIa.

Layout: Six cylinder, water-cooled, in-line.

Maximum speed: 124 mph, 200 km/h (BMW IIIa engine).

Endurance: Two hours (approx).

Weights: Empty = 1,543 lb (700 kg), loaded = 1,940 lb (880 kg).

Dimensions: Length: 22 ft 11.625 in (7.0 m); Span (top wing) = 29 ft 1 in (8.7 m); span (bottom wing) = 22 ft 8 in (6.95 m); height = 9 ft 6 in (2.95 m).

Armament: 2 x fixed 7.92 mm LMG 08/15 (synchronised to fire through the airscrew), 500 rounds per gun.

Construction: Sesquiplane with wooden cantilever wings supported by steel interplane and centre section struts. Fabric covered. Fuselage of steel tubing with metal cowls. Faired, split axle undercarriage with rubber (or steel spring) suspension.

performance statistics and preferences of the attending high ranking officers, orders were placed for the Fokker DVII and Pfalz DVIII. The Fokker DVII's Typenprüfung (Type-Testing Programme) was concluded by February 1918 and the Idflieg engineers were amazed at the simplicity and strength of the airframe. The initial contract with Fokker was large, too large for them to deal with, so Albatros and its subsidiary company Ostdeutsche Albatros Werke – OAW were also called upon to produce the DVII. Fokker was required to build 300 aircraft,

whilst Albatros and OAW, with their greater production capacity, were to build 600. All of the Albatros and OAW examples were identical to the Fokker examples, even though the companies never received a full set of drawings. Instead the aircraft built at Schneidemühl and Johannisthal were based on a DVII supplied to them by Fokker. Twenty-one DVII's were accepted into front-line service in February-March 1918 and from a front-line inventory of 19 on the 30th April 1918 this rose to 407 on the 30th June and 828 on August 31st.

The German fighter pilots liked the new DVII and many built up impressive scores whilst flying them, 30 victory ace Leutnant Carl Degelow attained 20 victories in a DVII in just five months. It was an agile and fast performer, noted for its ability to 'hang on the prop' during a dogfight. Known as the 'square-nose Fokker' to many Allied pilots the DVII was probably one of the best fighters of the First World War. Allied pilots who flew one after the Armistice agreed that this was a superior

The fuselage, less wings and tail, of the Royal Air Force Museum's (RAFM) Fokker DVII. This was taken in 1992 before the covering was removed for an inspection to be made, prior to the commencement of its restoration.



fighter to most allied types in many ways. It was therefore fortunate that at the time of the DVII's delivery into service the German forces were in retreat and air superiority was that of the allies. The DVII was not invincible, however, as the SE5A was as sturdy and manoeuvrable and was even a little bit faster. This fact is best illustrated by the combat involving seven SE5As of No.29 Squadron on the 16th September 1918. Here the SE5A had the upper hand and in 45 minutes they dispatched five DVII's, two Dr.1s and an observation balloon. It is believed, however, that these pilots must have been novices, or at least relatively new to combat, as a DVII in experienced hands would have given a far better account of itself.

The Mercedes powered version were good, but the BMW IIIa powered variant was even better. Its increased power, 185 hp, was an advantage at higher altitudes and the first BMW powered

DVII was accepted in May 1918. Of the 811 DVII's produced by November 1918, about a third of them were BMW powered. The engine was so good that many pilots felt a disadvantage if they were forced to fly a Mercedes powered DVII! By September 1918, however, the high compression Mercedes D.IIIa engine was being supplied and this was at least as good as the BMW, or OPEL licence built examples.

The Fokker DVII was sent out along the Western Front, as well as to the Kampfeinsitzer Staffel (Home Defence Units), to Turkey, Bulgaria and even Austria-Hungary. By the time the war came to an end, a few licence-built examples had been produced by MAG at Oest-ung, whilst Aviatik were yet to produce any. With the cessation of hostilities Anthony Fokker was able to smuggle a number of DVII's into Holland where he continued his business, selling examples to the Dutch government.

In its time the Fokker DVII was considered by the Germans to be the best fighter available to the aviator, it was also the only type mentioned by name in the allied armistice treaty; 'surrender in good condition by the German armies of the following equipment... 2,000 aeroplanes (fighters, bombers - firstly DVII's and night bombing machines)'. After the war there was serious consideration by both the US Army and Marine Corps of producing examples in the United States, a fitting tribute to a brilliant fighter.

SURVIVING DVII's

Canada:

National Aviation Museum, Rockcliffe Airport, Ontario C1A 0M8.

Fokker DVII 10347/18, W.Nr 3654 - under restoration.

Brome County Historical Society Museum, 130 Lakeside, PO Box 690, Knowlton, Quebec J0E 1Q0. Fokker DVII 6810/18 (OAW).

France:

Musee de l'Air et de L'Espace, 93350 Le Bourget.

Fokker DVII 6796/18 - displayed in La Grande Galerie.

Germany:

Deutsches Museum, Museumsinsel 1, 8000 Munchen 22.

Fokker DVII 4408/18 (ex D.20).

Netherlands:

Militaire Luchtvaart Museum, Kamp Van Zeist 3769 ZK, Soesterberg.

Fokker DVII 748/18 (ex N6268/N4729V in USA).

United Kingdom:

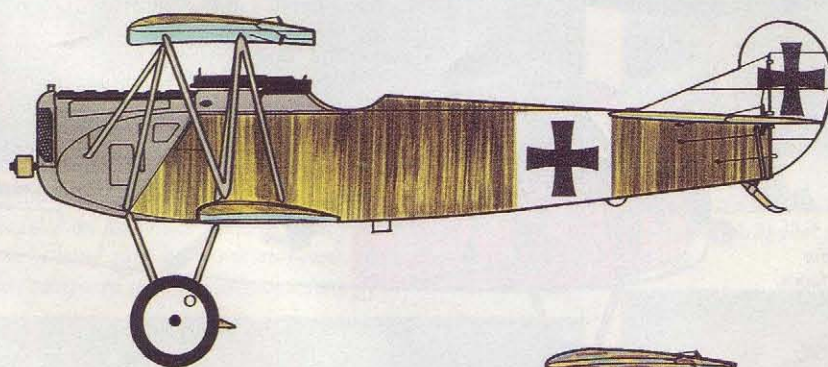
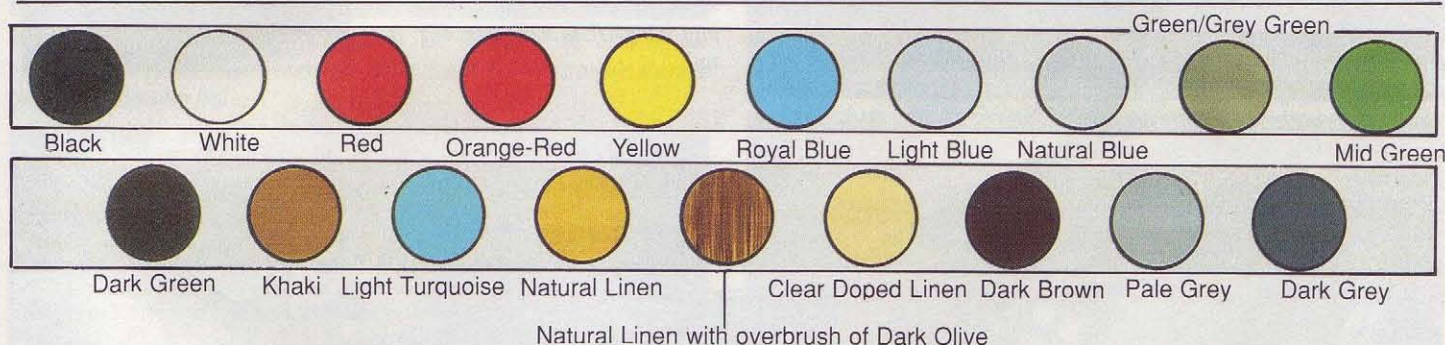
RAF Museum Reserve Collection and Restoration Centre, Cardington, Bedford MK42 0TH.

Fokker DVII 8417/18 (was once listed as 2319/18) - undergoing restoration.

United States of America

National Air and Space Museum, Smithsonian Institute, Independence Avenue, SW, Washington DC 20560.

Fokker DVII 4635/18, W/Nr 3533.



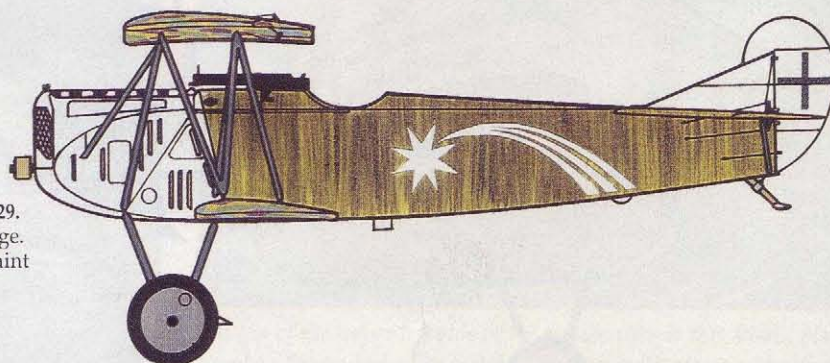
Fokker DVII (early production model)

Upper surfaces and rear fuselage: Natural linen with overbrushed Dark Olive.

Undersurfaces: Light Turquoise.

Nose area and struts: Pale Grey.

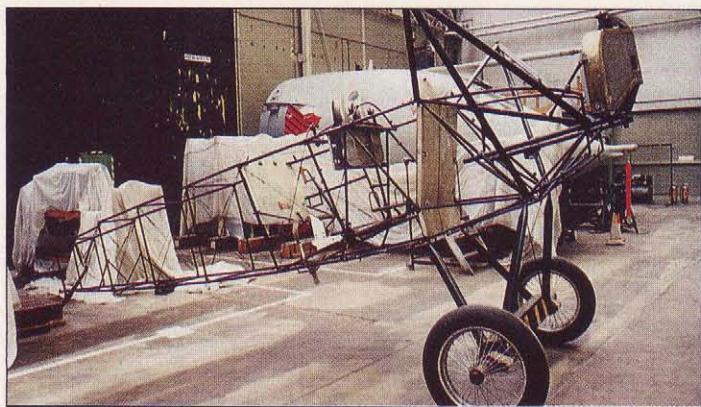
Wheel hubs: White (or turquoise).



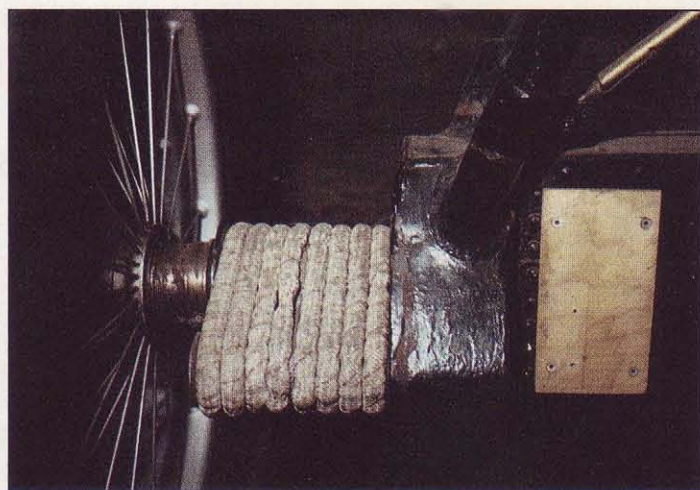
Fokker DVII, flown by Oberleutnant Aufahrt, Jasta 29. Upper and lower wing surfaces: Lozenge camouflage. Rear fuselage: Possibly natural linen with overpaint of Dark Olive.

Tail fin and rudder: White.

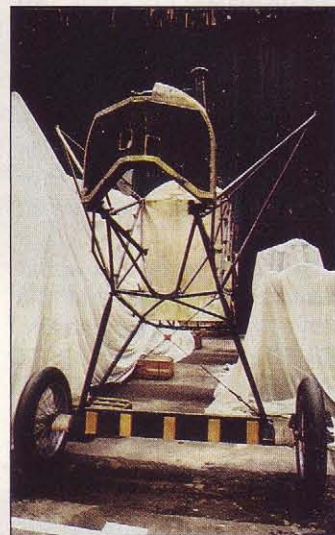
Nose: Natural metal. Struts and wheel hubs: Dark Grey.



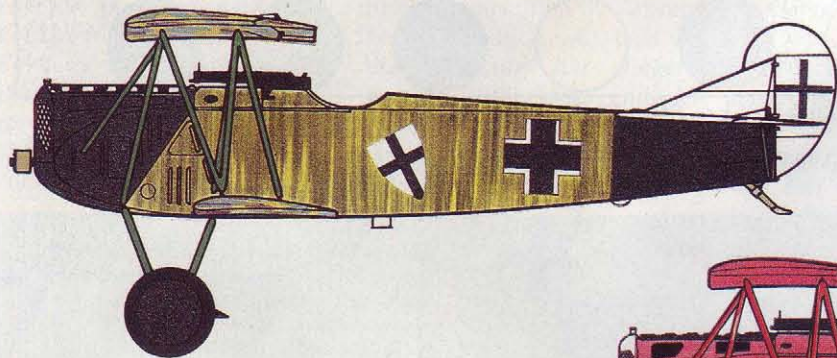
Above: This is the fuselage frame of the RAFM's DVII, as seen at Cardington in early 1995. The fuselage was stripped of its covering in 1992 and an initial survey of the aircraft was made. The engine and instrument were removed, plus the seat etc., but no further work has been undertaken on the fuselage. Below: This is the other end of the supporting wire within the undercarriage area. Of note is the leather padded loop and how the wire is bound to ensure it does not fray.



Above: Close up of the main undercarriage suspension! Early types such as the DVII have twin axles which are held together with bungies. When the aircraft makes contact with the ground the axles move parallel to each other and the bungie acts as a shock absorber.



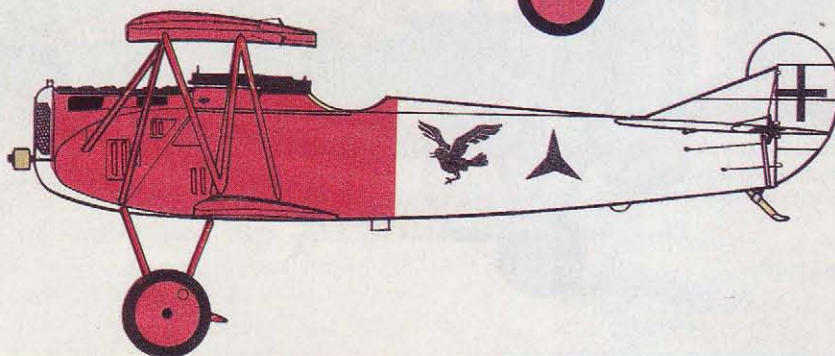
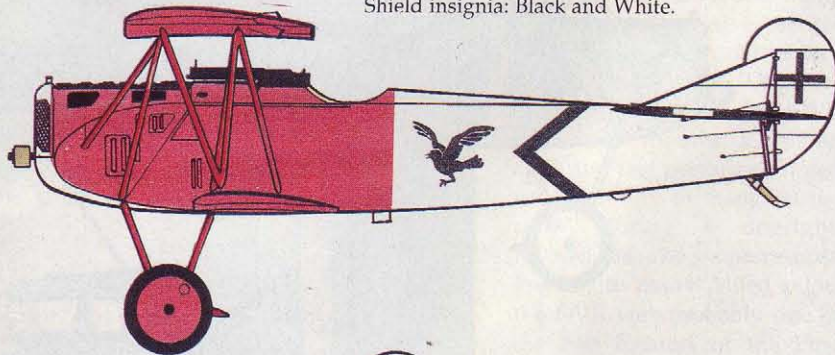
Right: A head-on view of the fuselage frame. The DVII is not a small aircraft and even without any wings it is well over 6½ ft tall.



Fokker DVII, flown by Leutnant Kraut of Jasta 4.
Nose, wheel hubs and rear fuselage: Black.
Mid fuselage: Natural linen with possible overpaint of Dark Olive.
Wing upper and lower surfaces: Lozenge camouflage.
Struts: Dark Green.
Fin and rudder: White.
Shield insignia: Black and White.

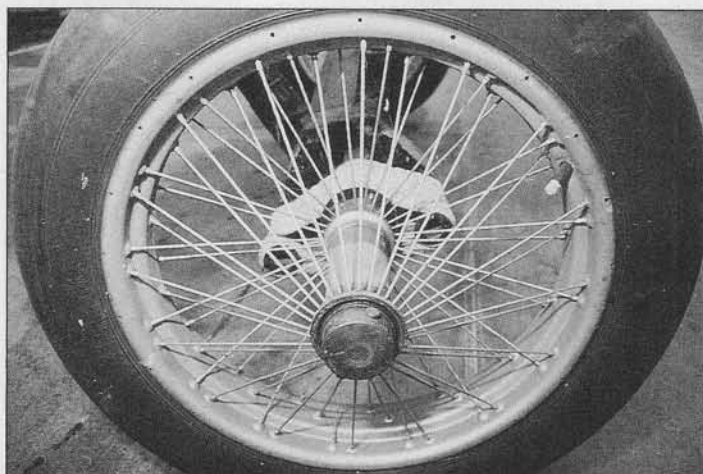
Fokker DVII of Jasta 18

Extreme nose, rear fuselage and tail unit: White
Forward fuselage, wing upper and lower surfaces, wheel hubs and struts: Red
Fuselage insignia: Black

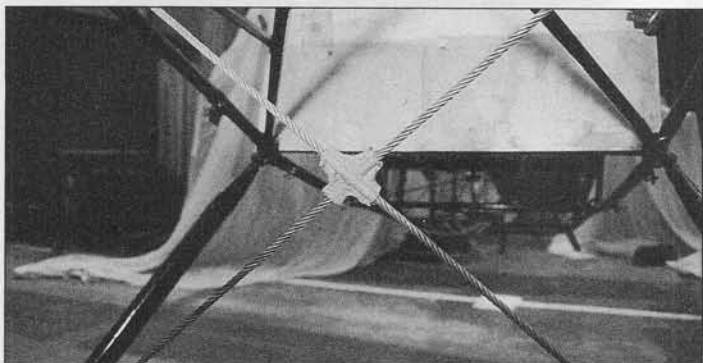


Fokker DVII of Jasta 18

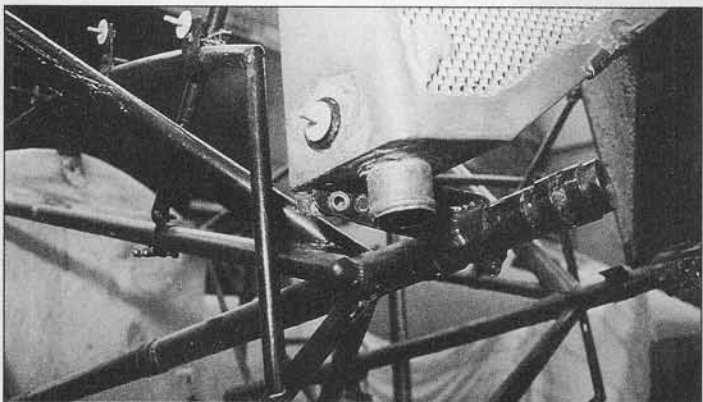
Colours as described previously.



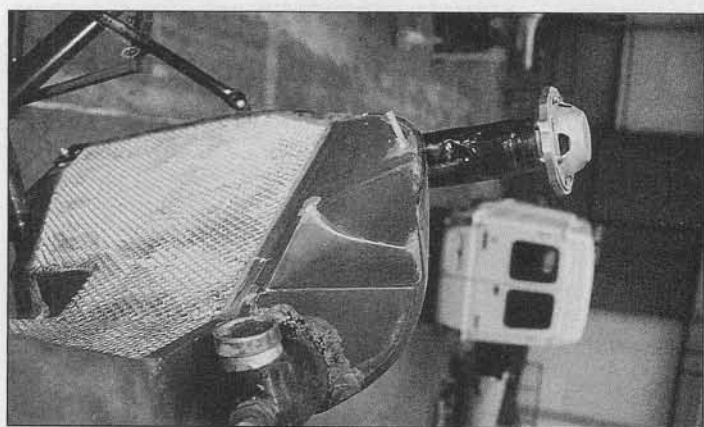
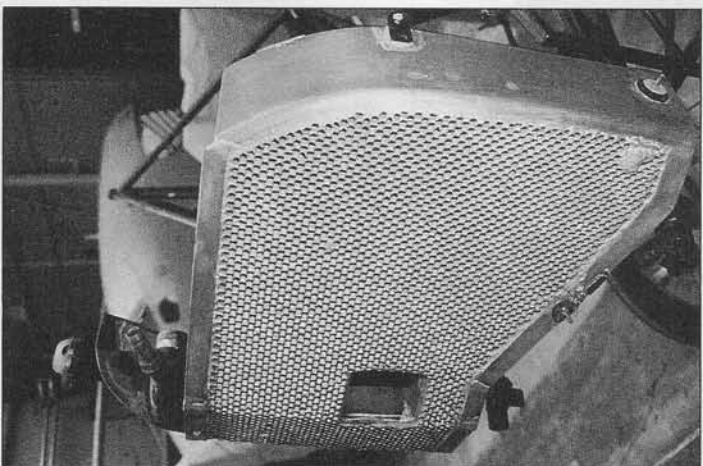
Overall view of the wheel type fitted to the DVII. I suspect that the tyre is not original, but the picture still gives you a good idea of what detail is under the canvas hub covers.



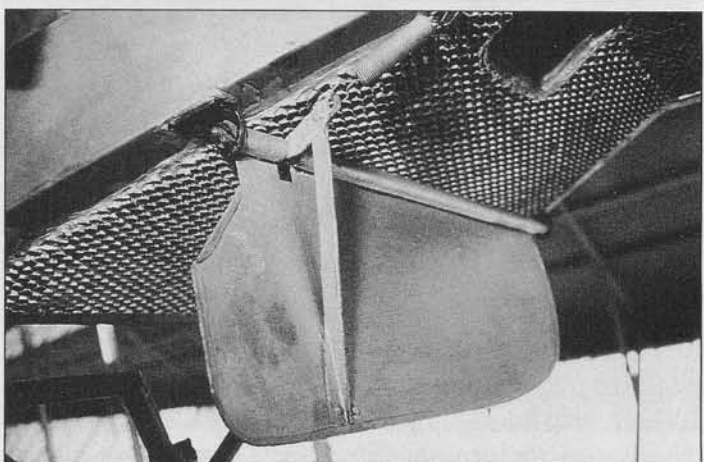
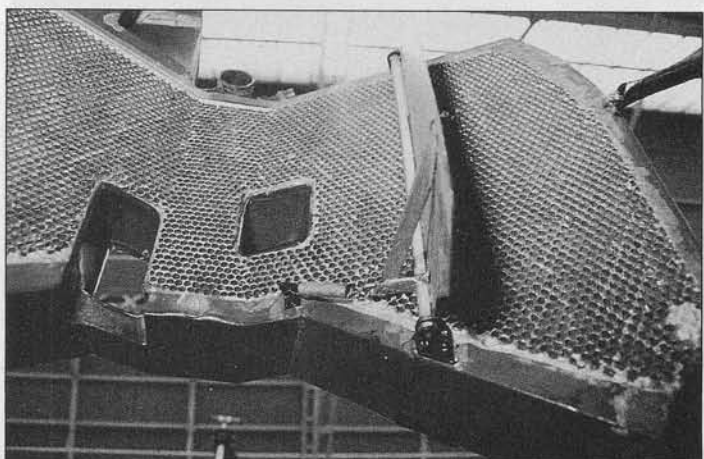
Within the centre of the undercarriage leg is this cross over of the supporting wire. To ensure they do not chaff, and therefore break, there is this special leather pad.



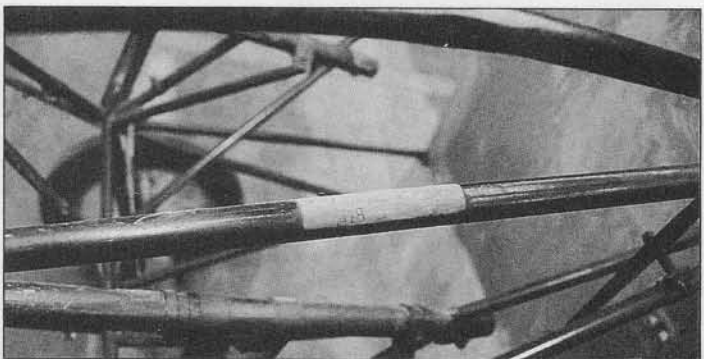
Above: The mounting bracket and radiator outlet. All the lugs on the DVII's frame, slid on and none of them seem to be welded in position. Below: The right hand side of the radiator now. Note the cut-out in the top edge when compared with the previous shot.



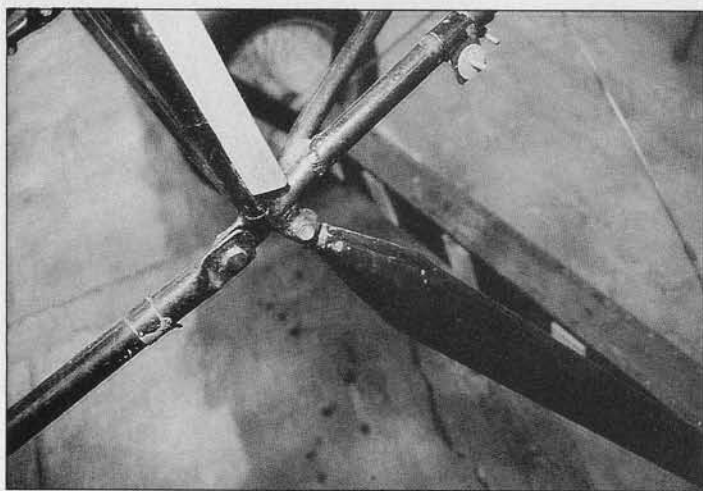
Above: This puts some detail and perspective on the radiators shape and construction. Once viewed from the rear, it's complicated shape becomes more apparent. Below: To the rear of the radiator and only on the right side, is this simple shutter. It is operated via a cable and is sprung loaded.



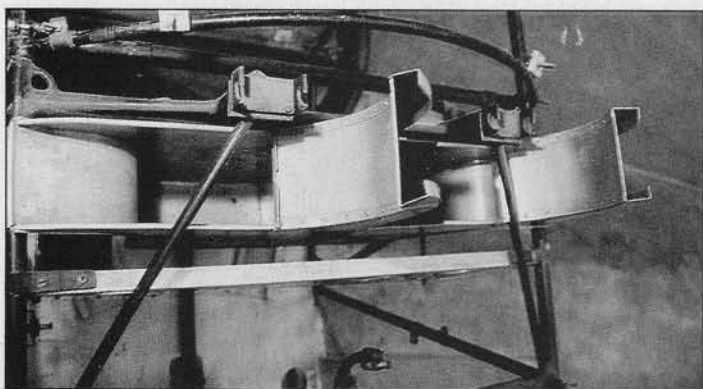
Another look at that shutter. The simple construction and operation are evident.



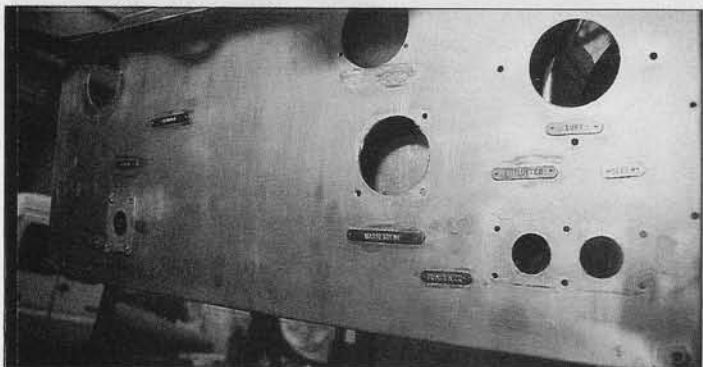
On top of the upper left side of the engine tube is this Werke plate. The number shown looks like 504/18, however with closer inspection it in fact says 504/118. The former will be the Werke number adopted once the aircraft is restored, its authenticity is a little dubious though.



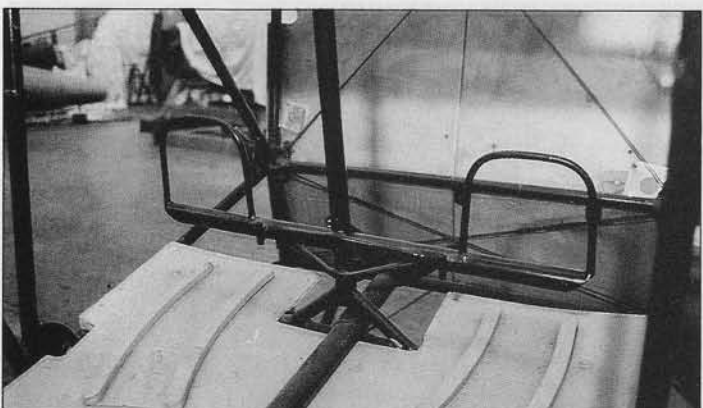
We have already seen the forward joint of the undercarriage 'V' strut, this is the rear one.



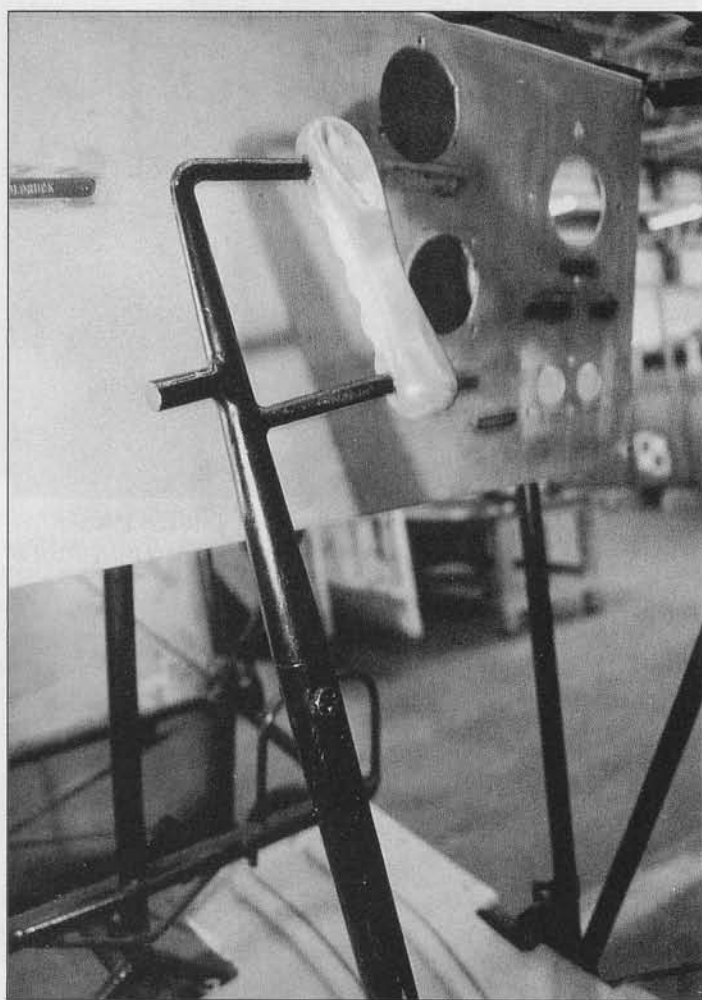
The D.VII was armed with two LMG 08/15 machine guns and this is the ammo bin for them. Each gun is fed from the right, up the chute, and the empty cases are ejected out of the left.



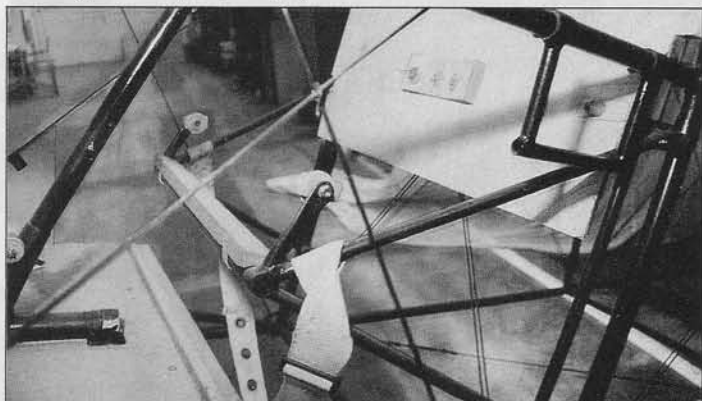
As I said at the beginning, all the D.VII's instruments have been removed. This shows you the instrument panel shape. The panel is not original, being made by members of the RAeS, whilst the aircraft was in their custodianship at Heathrow in the 1950s.



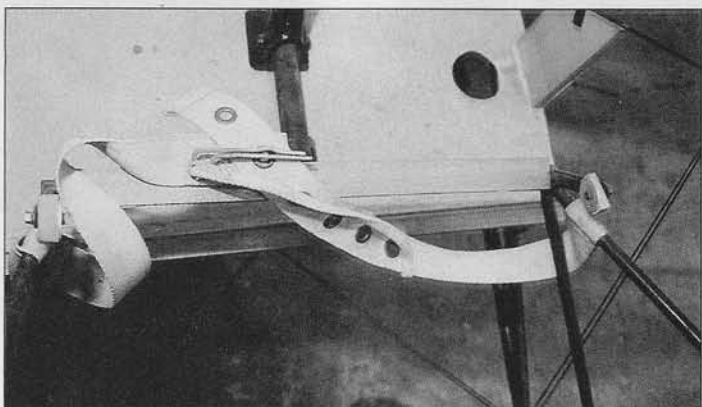
Looking directly at the rudder pedal, truly a simple but functional design.

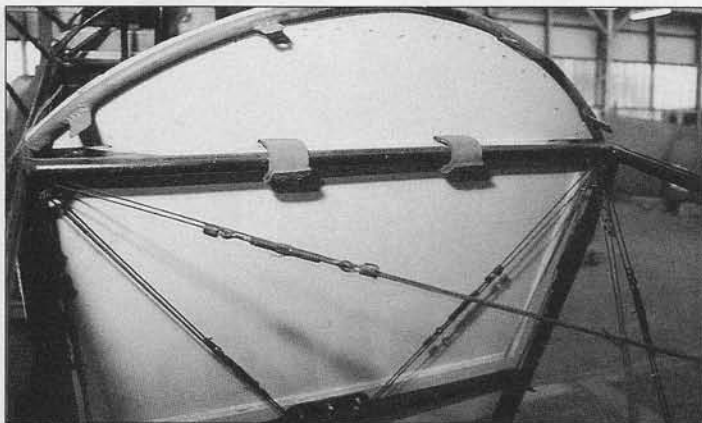


The control column on the D.VII is a metal and wood component. Although not complete, this shot gives you an idea of its shape, as well as the design and angle of the grip.

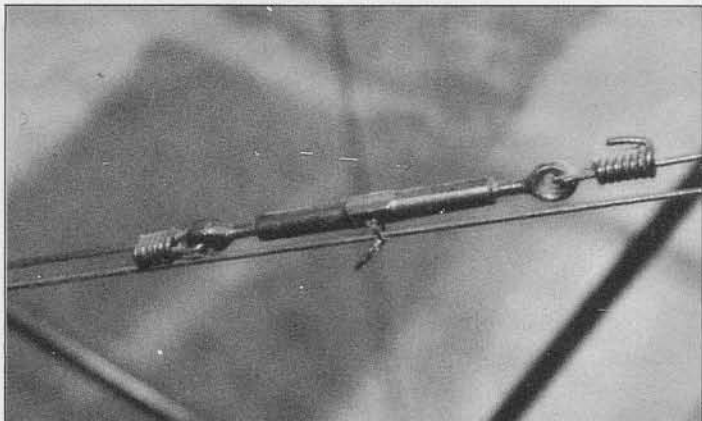


Above: The seat had been removed but this allows you to see how it is mounted to the rear bulkhead. Note the simple loop for attaching the seat harness to the frame. Below: A look at the seat harness. This is very simple, being a webbing belt with eyelets and just a post and pin to secure it, and you!





This is the view of the back of the rear bulkhead looking forward. Once again this is only wood, but note the leather pads around the tube used to secure it.



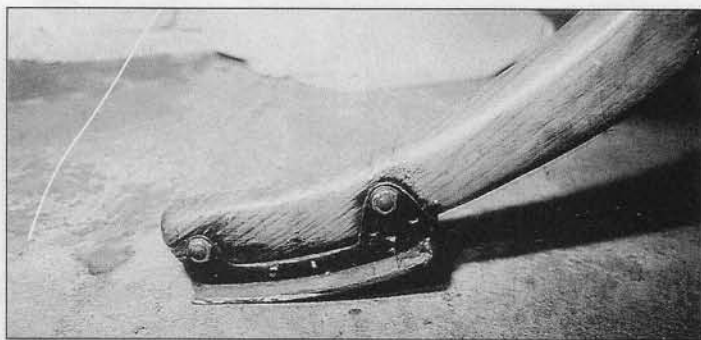
Close-up of the turn-buckles used throughout the fuselage. Each segment of the fuselage is braced by a criss-cross of two wires.



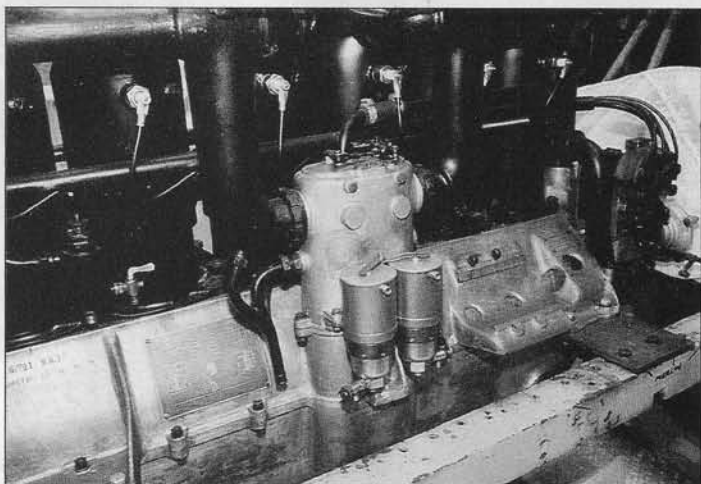
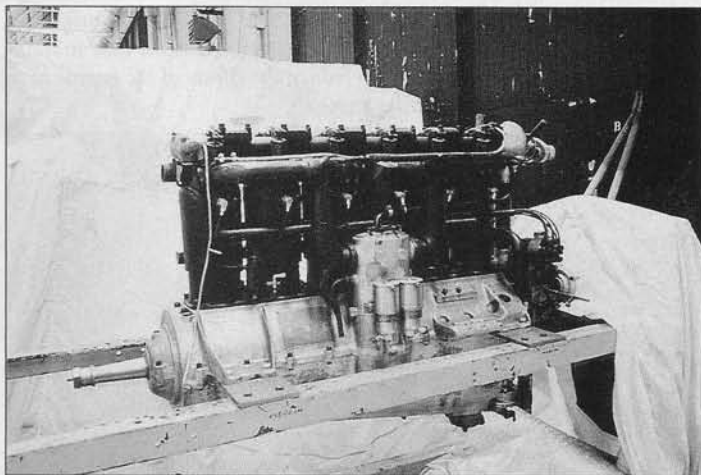
The loop is a hand hold and it is fitted toward the rear of the fuselage on both sides. The eyelet for the bracing wires at the corner of each fuselage segment is of note.



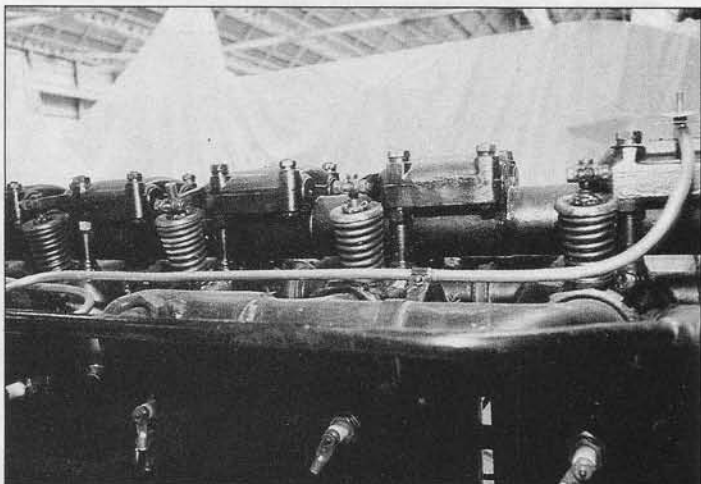
Nice look at the tailskid. This is a wooden assembly with metal fittings.

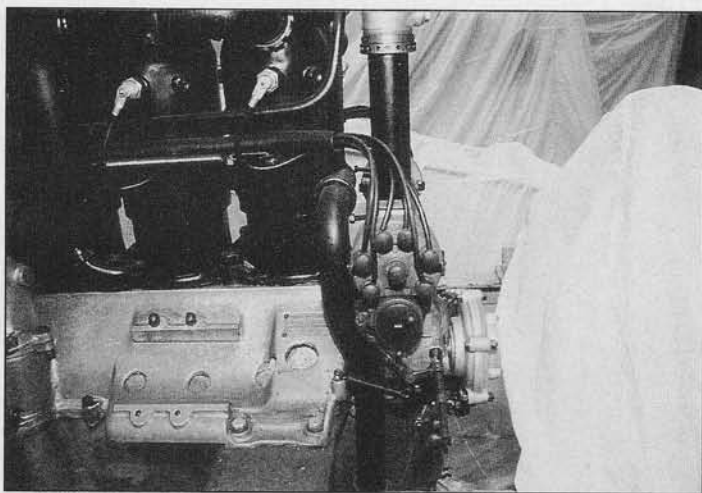


Above: Close-up of the metal plate fitted to the contact surface of the wooden tail skid. Below: Moving away from the fuselage frame and onto the engine. Out of the aircraft and externally refurbished, it is a very handsome item in its own right.

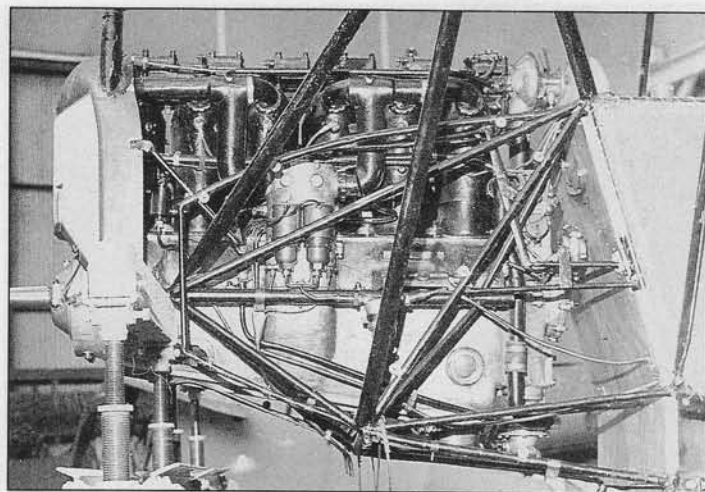


Above: Close-up of the carburettor on the Mercedes engine. Below: Top of the engine, showing the exposed rocker springs.

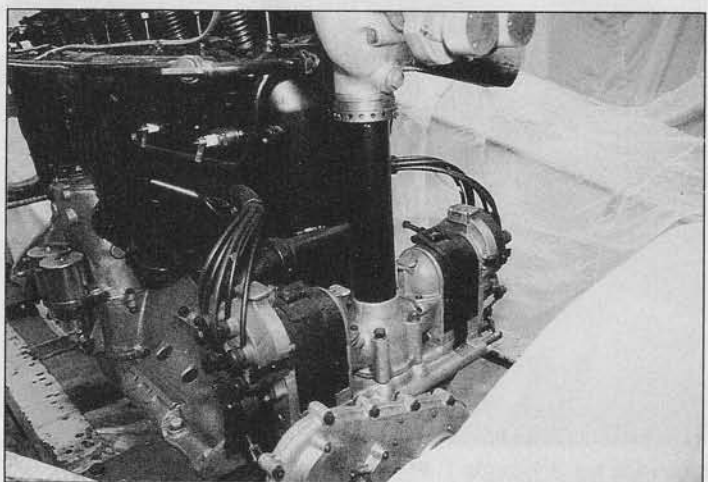
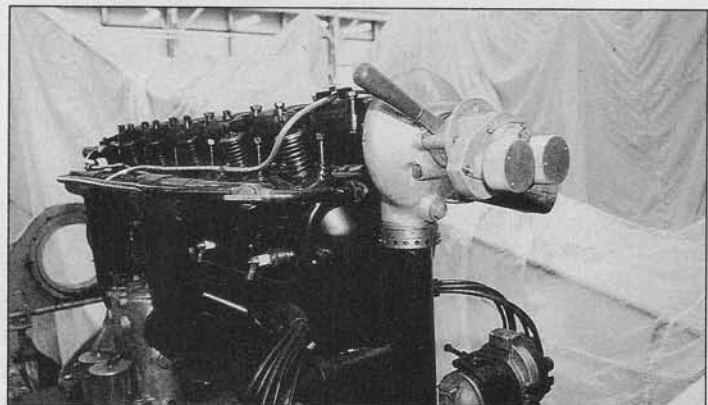




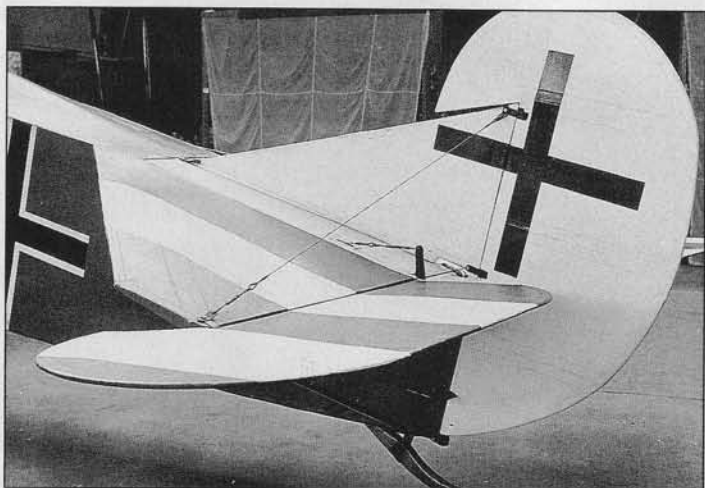
Above: Each barrel has two plugs and therefore there are two magnetos. This is the one on the left. Note how the wires pass into the tube to travel down the cylinder, in an attempt to reduce the effects of the engine heat. Below: Rear view of the Mercedes engine.



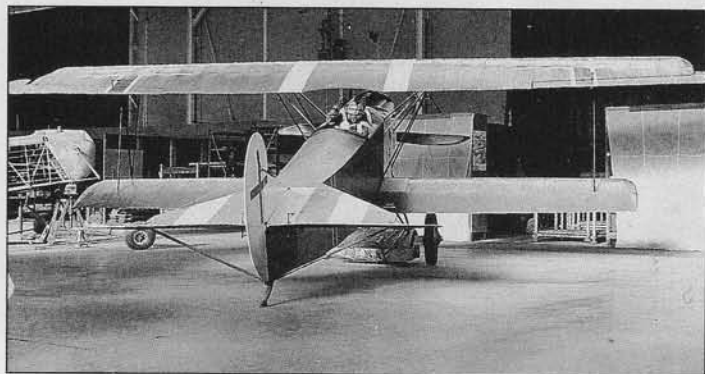
A close-up of the left side of the engine fitted within the fuselage frame.



Above: Close-up of the twin magnetos. Below: Overall look at the Fokker DVII at Cardington in 1975.

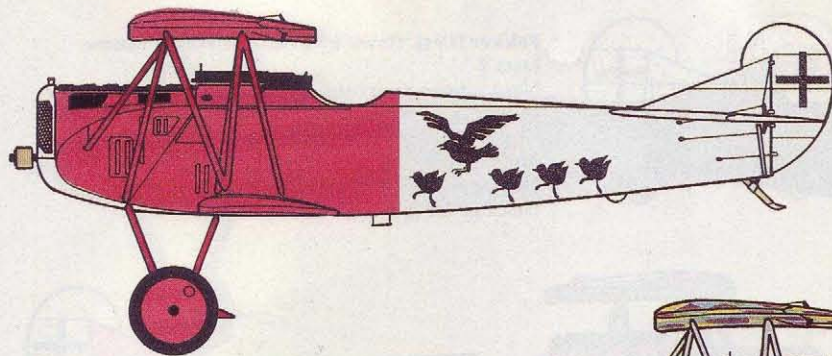


Above: Close-up of the whole rudder and tail assembly of the DVII. The photograph was taken in 1979, whilst the aircraft was at Cardington being worked on. Below: Overall shot of the complete DVII, once again at Cardington in 1979.



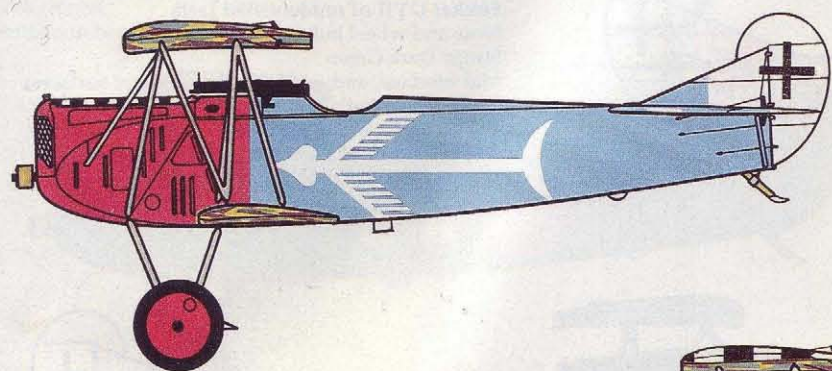
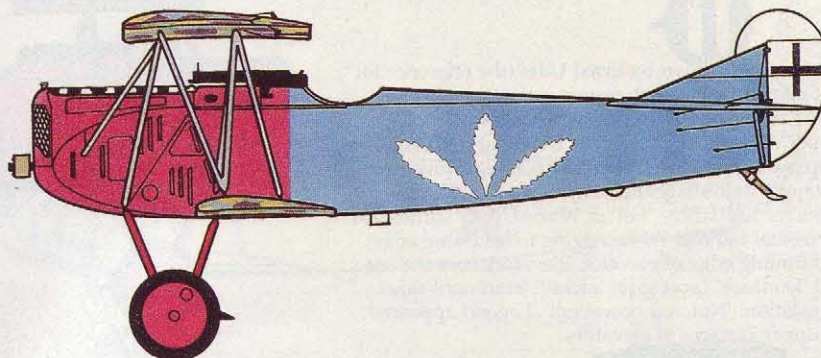
Probably photographed in the late 1950s or early 1960s this shows the DVII complete, bar the wheels, when it had polished engine cowls.

Fokker DVII flown by Leutnant Gunther von Buren of Jasta 18
Colours as described previously.



Fokker DVII flown by Leutnant Joachim Ziegesar of Jasta 15

Forward fuselage, wheel hubs and wheel struts: Red. Wing upper and lower surfaces: Lozenge camouflage. Wing struts: Grey. Rear fuselage and tail fin: Royal Blue. Rudder: White. Fuselage insignia: White.

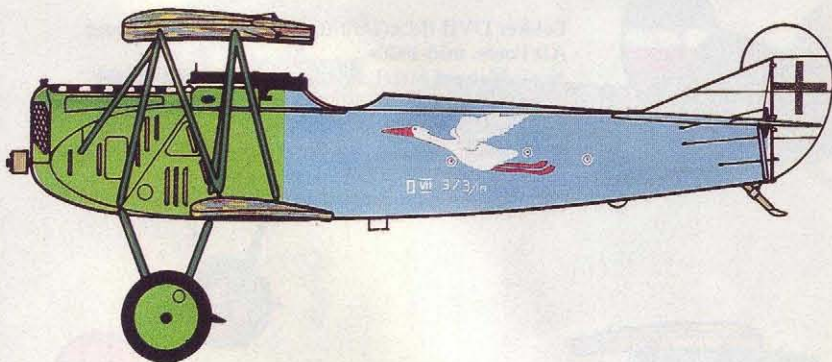
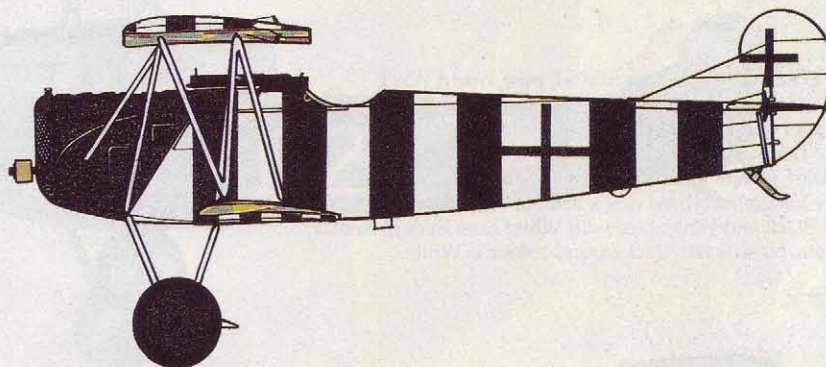


Fokker DVII flown by Leutnant Valtejs, Jastfuhrer of Jasta 15

Colours as described previously, except that horizontal tail surfaces have white stripe running lengthwise at about mid span.

Fokker DVII flown by Oberleutnant Bruno Loerzer, Jagdgeschwader 3

Upper wing (upper surfaces), lower wing (lower surfaces), fuselage and wheel hubs: Black and White. Tail fin and rudder: White. All struts: White.

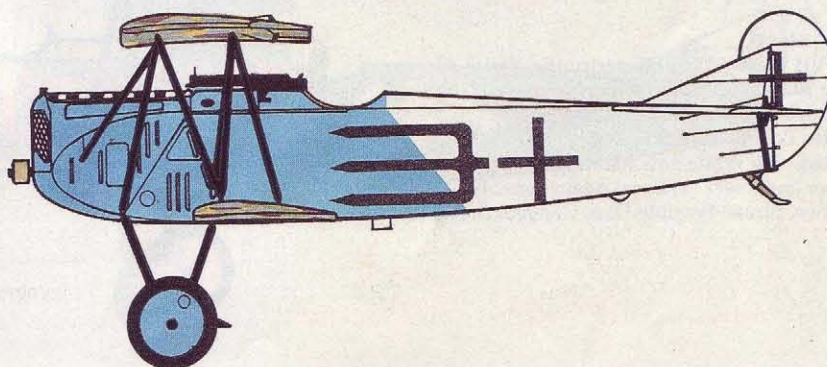


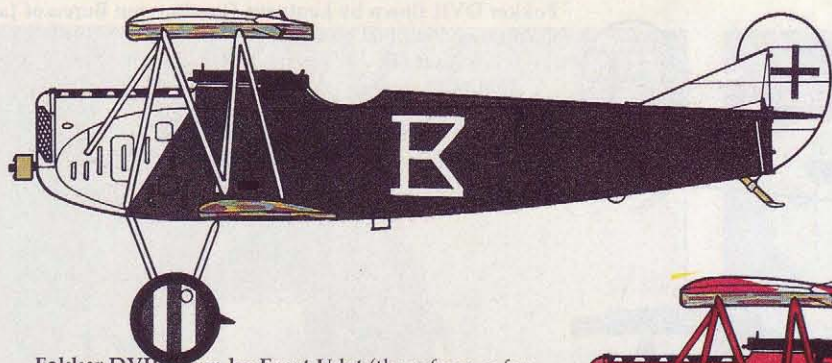
Fokker DVII flown by Uffz Heinrich Piel of Jasta 13

Nose area and wheel hubs: Mid Green. Struts: possibly Dark Green. Wing upper and lower surfaces: Lozenge camouflage. Fin and rudder: White. Rear fuselage: Blue. Fuselage insignia: White stork with Orange-Red beak and legs. Note three small RFC insignia, denoting hits on allied aircraft.

Fokker DVII flown by Leutnant Rudolph Stark of Jasta 35

Forward fuselage and wheel hubs: Blue. Struts: possibly Black or Dark Green. Wing upper and lower surfaces: Lozenge camouflage. Rear fuselage, fin and rudder: White. Fuselage insignia: Black.

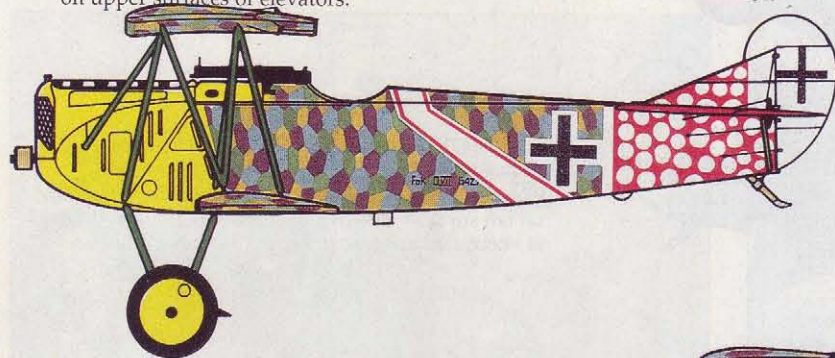
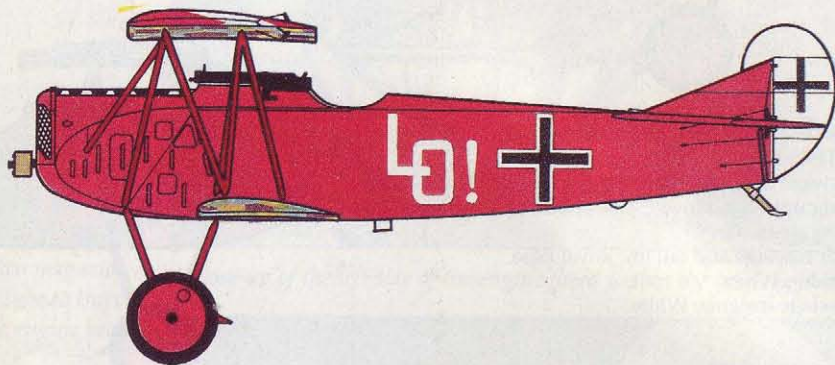




Fokker DVII, flown by Leutnant Walter Blume, Jasta 9

Nose, upper wing (upper surface), struts, fin and rudder: White
Upper wing (lower surface) and lower wing: Lozenge camouflage.
Fuselage: Black. Wheel hubs: Black and White.
Fuselage insignia: White.

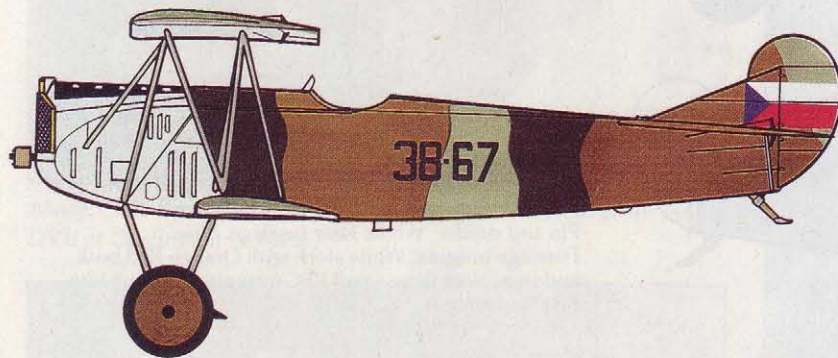
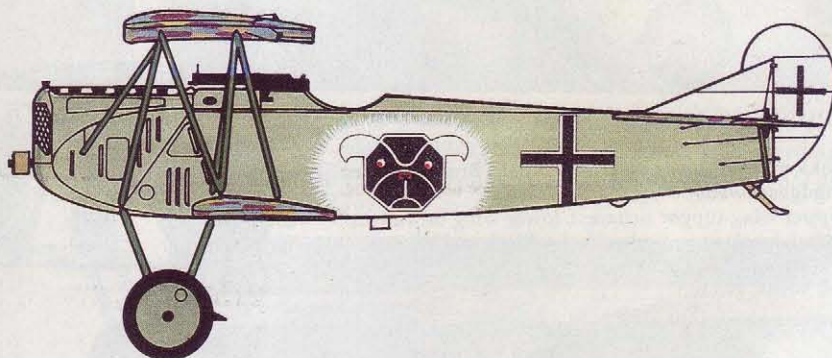
Fokker DVII flown by Ernst Udet (the reference for this machine was taken from a restored example)
Entire fuselage, tail fin, struts, wheel hubs: Red
Upper wing (upper surfaces): Diagonal Red/White striping. Upper wing (lower surfaces) and lower wing: Lozenge camouflage. Fuselage insignia: Udet's pet name for his fiancée 'Lol' in White. Upper surfaces of horizontal tail had White edging to leading edge, and trailing edge of elevator. Elevators bore the legend 'Du doch' (port side) 'nicht!!' (starboard side). Translation: 'Not you however!!'. Legend appeared on upper surfaces of elevators.



Fokker DVII of unidentified Jasta

Nose and wheel hubs: Yellow
Struts: Dark Green
Mid fuselage, and wing upper and lower surfaces: Lozenge camouflage
Tail fin and horizontal tail: Red with White polka-dots. Rear half of fin and rudder: White
Fuselage band: White with Red edging.

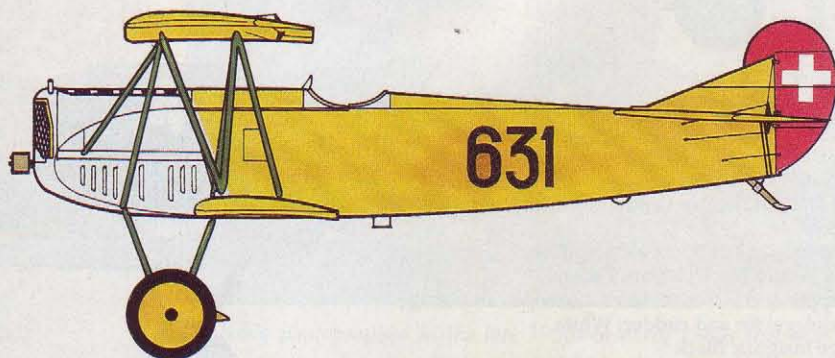
Fokker DVII of Polizflieger Staffel, post World War I
Entire fuselage and wheel hubs: Grey-Green.
Wing upper and lower surfaces and horizontal tail upper surfaces: Lozenge camouflage.
Struts: Dark Green. Fin and rudder: White.
Fuselage insignia: Stylised dog's head in following colours: Black and White face with White ears. Eyes in Red and White. Nose is red. Background colour is White.



Fokker DVII (MAG-built) of Czechoslovak Army Air Force, mid-1920s.

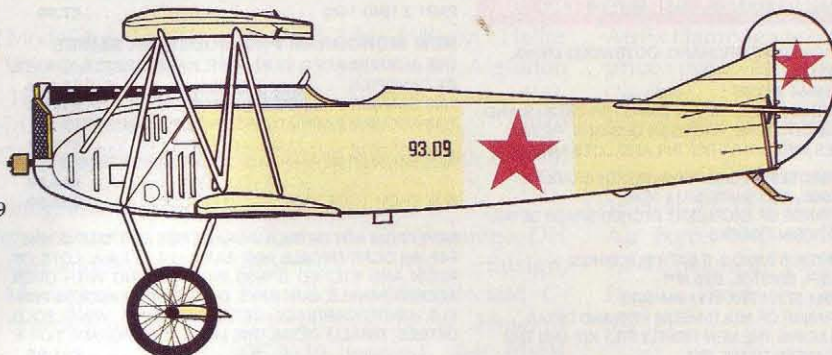
Nose: Natural metal. Fuselage, and possibly wing upper surfaces: Camouflage colours of Green, Khaki and Dark Brown. Wheel hubs: Khaki.
Wing lower surfaces: Possibly Light Blue or Aluminium doped. Tail insignia: Red/White/Blue.
Number (38-67): Black.

Fokker DVII Black 631 of Fliegertruppe, Swiss Air Force, late 1920s
Nose and cockpit surround: Natural metal. Fuselage: Possibly Natural linen.
Wheel hubs: Possibly Natural linen.
Rudder: Red with White national insignia.
Wing upper and lower surfaces: Again possibly Natural linen. Struts: Possibly Dark Green or Brown.





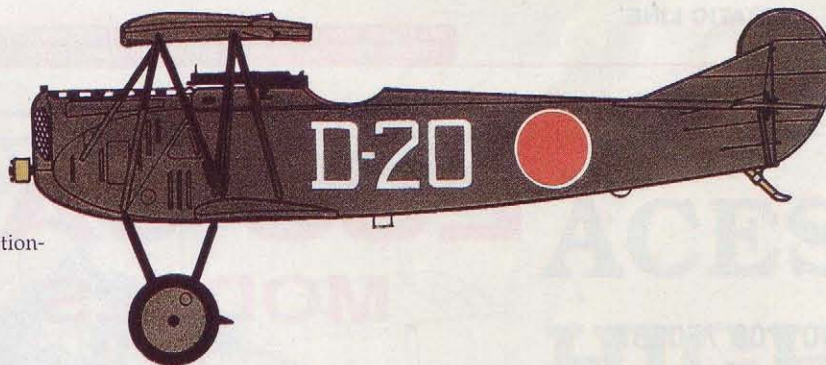
Fokker DVII of Ukranian Air Force around 1920
Entire fuselage and all wing surfaces: Dark Green.
Rudder: White.
Struts: Black.
National markings were Blue and Golden Yellow.



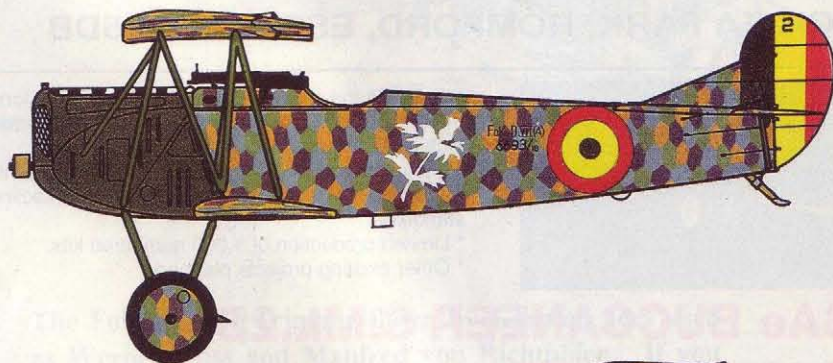
Fokker DVII (MAG-built) s/n 93.09 of 8th Voros
Repulsozazad, Red Hungarian Air Corps, April 1919
Nose area: Natural metal.
Fuselage and all wing surfaces: Clear doped linen.
Struts and rudder: White.
National markings consisted of Red star on White
background.
Serial number: Black.



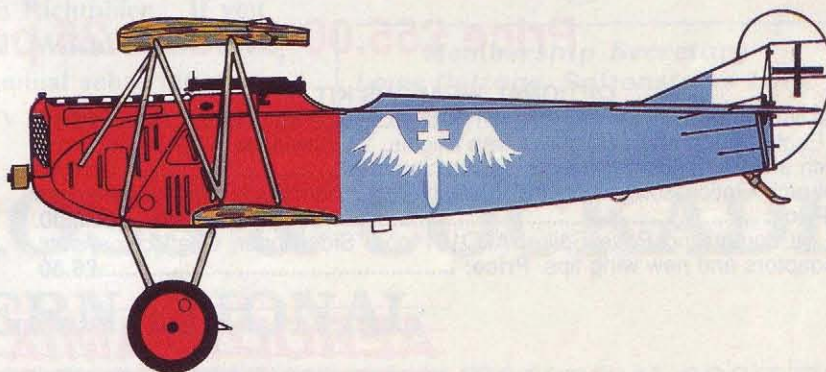
Fokker DVII s/n F.251 of Netherlands LVA, 1920
Entire fuselage, all wing surfaces and tail unit: Dark
Green.
Struts: Dark Green. Note that Green was glossy.
National markings: Orange-Red disc.
Serial number: White.



Fokker DVII s/n D-20 of Netherlands
Marineluchtvaardienst, 1919-20
Colours as described previously, except that national
marking had White outline.



Fokker DVII 6693/18 of Belgian Aviation
Militaire, Bruxelles-Evere, summer 1919
Nose and struts: Dark Green.
Fuselage and all wing surfaces: Lozenge camou-
flage.
Wheel hubs: Lozenge camouflage.
Rudder and rear fin: Black/Yellow/Red.
'Le Chardon' insignia on fuselage in White.



Fokker DVII of Jasta 15
Colours as described previously.

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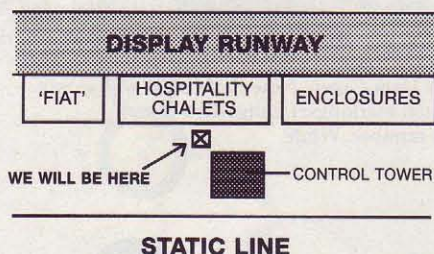
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3180 USN LT. GREY A/N602
3187 INTERIOR GREEN A/N611
3275 USAAC BLUE 23
3276 USAAC OLIVE DRAB 22
3277 USAAC ORANGE-YELLOW411
USA POST WW.II
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3323 BROWN SPECIAL FS. 30140
3329 DARK GULL
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3341 LIGHT GREY FS. 36622
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3124 PANZER DARK YELLOW
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3130 PANZER INTERIOR BUFF
USA. WW.II
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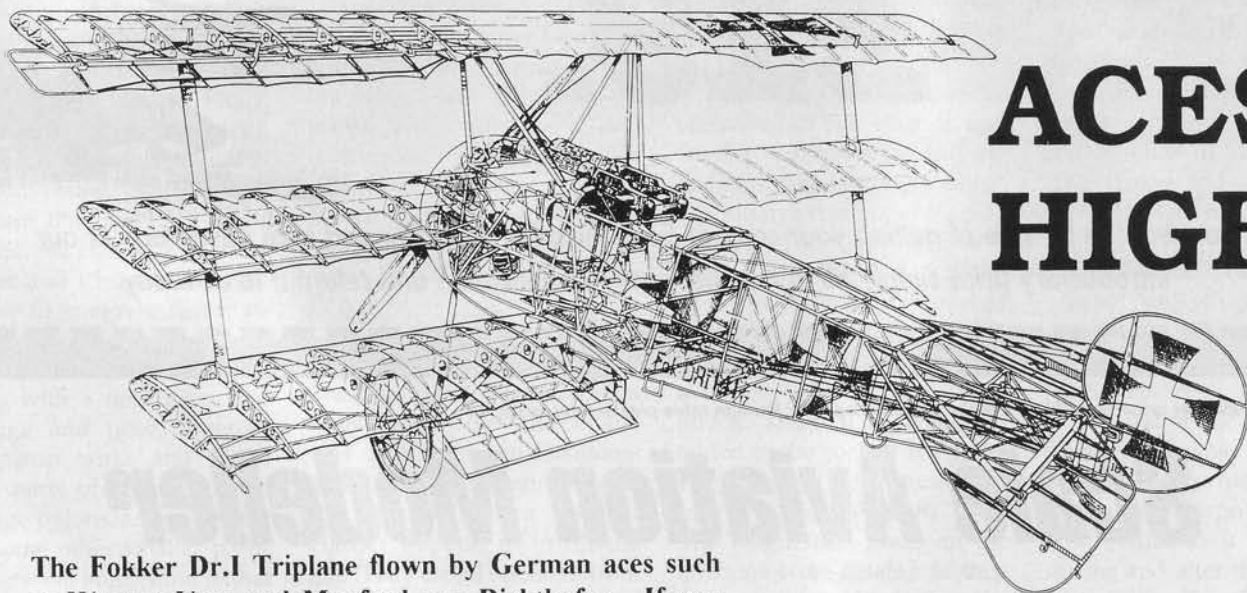
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2ND GENERATION SEA HARRIER

Gary Madgwick updates the ESCI Sea Harrier FRS.1 into an F/A.2

The latest version of one of the all-time classic aircraft is just entering service with the Royal Navy – the Sea Harrier F/A.2.

For my conversion I used the ESCI Sea Harrier FRS.1, 1:72nd scale kit together with the Scalecast (now Aerokit) 72-07 conversion set. I still maintain that the ESCI kit is the best Sea Harrier kit on the market and I hope that ERTL will see fit to re-release it in its range.

The Scalecast conversion set comes with a new resin rear fuselage and nose, together with drop tanks and white metal parts of the AMRAAM fuselage pylons, an ejector seat and some other smaller parts. My personal suggestion is that only the resin parts and the odd white metal part are used, as I shall describe below.

I replaced the AMRAAM missiles with those supplied in the Airfix Weapons Set and the ejector seat with the Aeroclub one (number EJ 008). Care must also be taken with the Scalecast instructions as these were based on the first

prototypes and lack some of the modifications to the production version.

The only other accessory I bought for this project was the Airwaves Sea Harrier FRS.1 brass detail set which has some useful parts for the F/A.2 conversion. I have drawn up a full set of 1:72nd scale plans showing all the modifications that are needed to build a super detailed Sea Harrier F/A.2.

HISTORY

The Sea Harrier can trace its roots back to the GR.1 of the RAF and when the Phantoms and Buccaneers retired from the Fleet Air Arm the Sea Harrier stepped in to fill the gap. They are all operated from the Invincible Class carriers of which the Royal Navy has three: *HMS Invincible*, *HMS Illustrious* and *HMS Ark Royal*.

HMS Hermes was sold to India – the only other operator of the type, in 1986 and is now named *INS Vikrant*.

The first Sea Harriers were ordered in 1975. They numbered 24 FRS.1s – in addition a

single T.Mk.4A trainer was also acquired. Ten further Sea Harriers were ordered in 1978 and a further 14 were ordered as attrition replacements after the Falklands War in 1982.

The major differences between the Sea Harrier and the RAF aircraft were the new front fuselage housing the Blue Fox radar; a cockpit which was raised by 10 inches; and a new canopy to give better visibility to the pilot. A new improved Rolls-Royce Pegasus Mk.104 engine was also fitted. New avionics, ejector seat, nav-attack and HUD were all added to the cockpit while the wing pylons were stressed to take a wider weapons load. The magnesium areas on the airframe were deleted as they were considered likely to suffer from salt water corrosion.

On 26 June 1979 700A Naval Air Squadron (NAS) was formed as the intensive flight trials unit based at HMS Heron (RNAS Yeovilton). It was renumbered 899 NAS on 31st March 1980 and became the headquarters and training squadron, a task it performs to

this date.

The first squadron destined for carrier operations was 800 NAS, which formed in April 1980 and made its first deployment aboard *HMS Invincible* in September. The squadron then transferred tail codes when it deployed to *HMS Hermes* and subsequently saw action in the South Atlantic.

The second sea-going unit was 801 NAS which formed on 28 January 1981 and saw action in the South Atlantic aboard *HMS Invincible*.

The last of the Royal Navy squadrons was 809 NAS, which was formed only for Operation Corporate in the South Atlantic. It saw service during and after the Falklands War as the Royal Navy's air watch aboard *HMS Illustrious*. The squadron was disbanded on 17th December 1982 but rumours abound that the squadron may yet be reformed with F/A.2s.

SEA HARRIER FRS.2

With the experience of the Falklands war behind it, the

Royal Navy and British Aerospace started to refine the Sea Harrier FRS.1 into a more capable aircraft. As a result BAe received a contract for the conversion of two Harriers FRS.1s into what was then known as the FRS.2.

The changes included the upgraded Blue Vixen radar in a re-profiled nose with a new weapons fit of AMRAAM and enhanced RWR fit. On the original concept, wing-tip Sidewinder rails and extended

wing tips were proposed but these did not appear in the production version. A new kinked wing leading edge and third wing fence were, however, added, together with the 350 mm rear fuselage plug.

The nose pitot head probe on the FRS.1 was repositioned onto the tail fin leading edge making the F/A.2 nearly 2 ft shorter than the FRS.1. Larger underwing fuel tanks are also fitted and the engine has been upgraded to the Pegasus

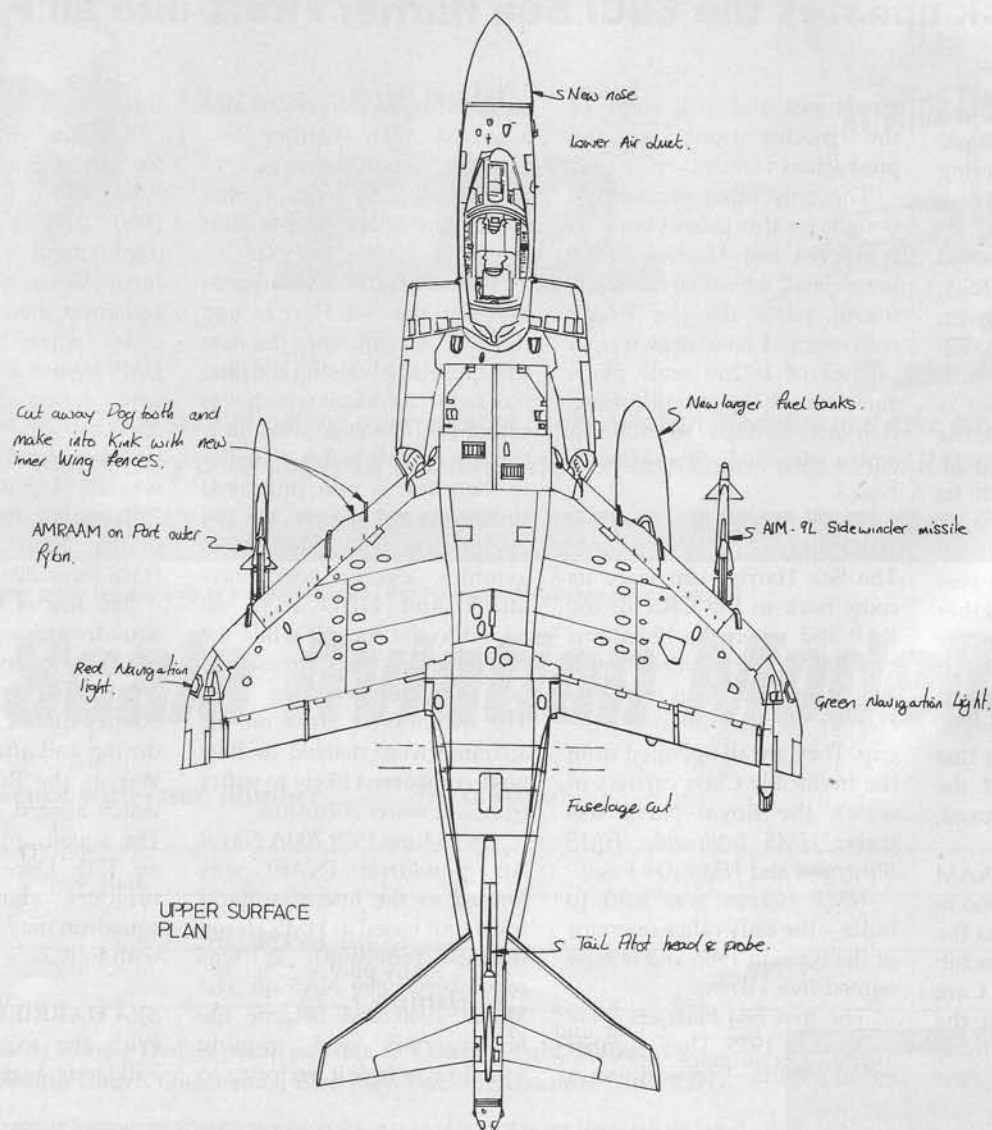
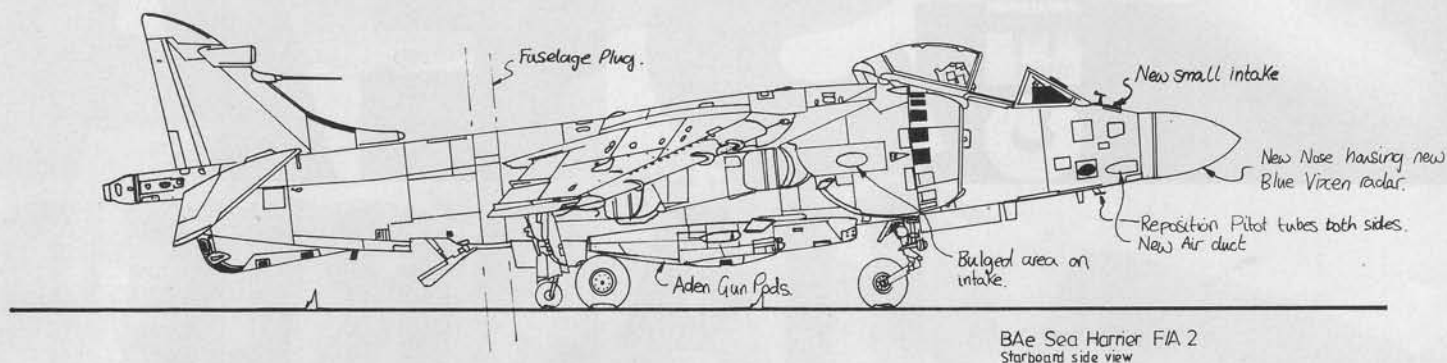
Mk.106 which is a navalised version of the Mk.105 fitted to the AV-8B but without any magnesium in its construction.

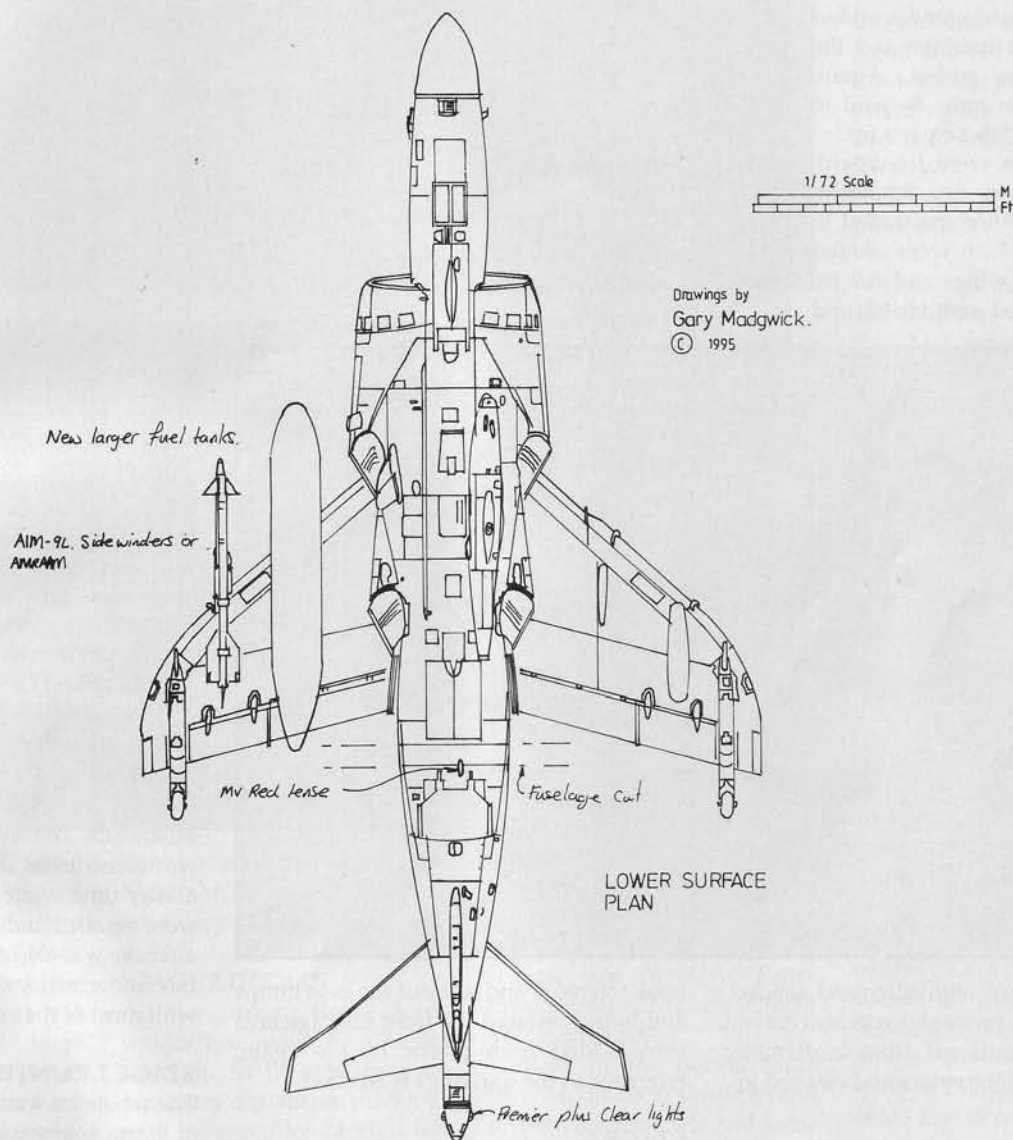
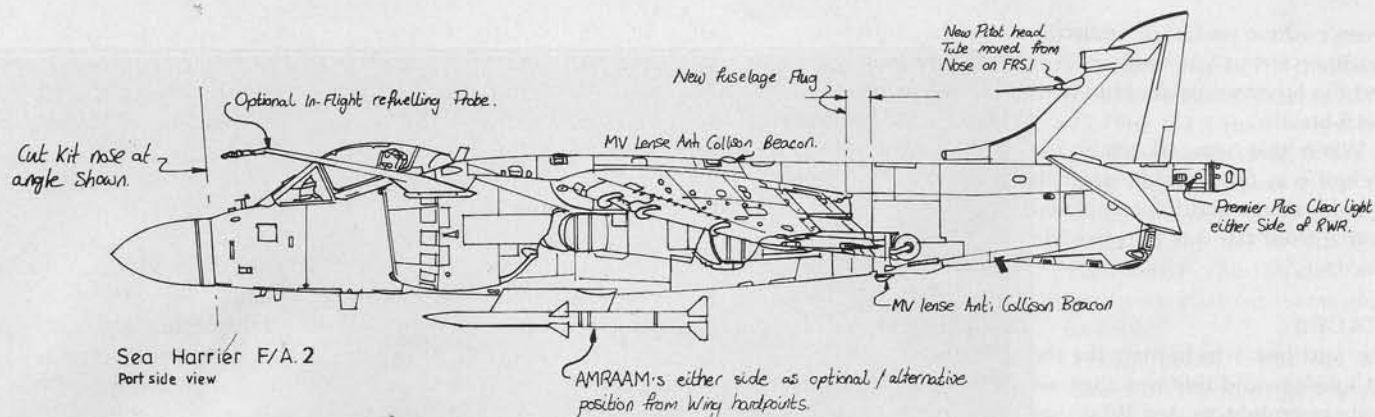
The cockpit has also been completely redesigned with new multi-function CRT displays and HOTAS controls plus a new HUD.

Although the overall project is now running about five years late with large cost overruns, the Sea Harrier F/A.2 has evolved into a very capable Fleet defence fighter. It

has all-weather, multiple look-down-shoot-down capabilities and still retains the attack and reconnaissance capability of the original FRS.1.

The Sea Harrier was blooded in battle with the Royal Navy during the retaking of the Falkland Islands in 1982 and the multiple kills to its credit with no air-to-air losses itself proved that the concept of the Sea Harrier is well founded.





THE MODEL

As mentioned at the beginning of the article, I am using the ESCI Sea Harrier FRS.1 with the Scalecast conversion set. I am also using the Airwaves detail set No. AC7205, the PP ladder for the Sea Harrier and the Aeroclub ejector seat EJ008 – the Martin Baker Mk.10H.

STAGE 1

The kit parts were offered up to my scale plans and the cut lines drawn in pencil on the kit

parts. The fuselage was cut for the rear plug with a fine razor saw, as was the new nose. The resin parts were also cleaned up and some Milliput was added to the inner surface to strengthen it.

The new air brake assembly was cleaned up and then superglued into one half of the resin fuselage. I again strengthened this with some plastic card to stop it moving later on when the filling and sanding took place. Both resin

fuselage halves were now superglued together and set aside to dry. Care must be taken to align this properly at this stage.

STAGE 2

Next the engine fan was painted and detailed and set aside to dry while I turned my attention to the cockpit area. Without any photos of the new Sea Harrier's cockpit layout I improvised, using the brass Airwaves side consoles and

scratchbuilding a new instrument panel with parts from the Reheat range.

All the cockpit area was painted Grey Humbrol 140 which, my sources at BAe tell me, is the nearest paint shade available. The instruments and dials were highlighted as per Linewrights' Aeroguide No.3 with grey and black knobs, dials and so on. The Aeroclub ejector seat was also detailed and set aside to dry. The seat frame is dark grey with dark

green cushion and back while the headbox straps are yellow/buff and the other straps are blue with black buckles.

When this was all ready the cockpit was fitted inside one half of the fuselage and the completed engine front fan was also fixed in place.

STAGE 3

The next task was to mate the the kit fuselage and this was then set aside overnight to dry. When set the resin rear fuselage was added to the kit front fuselage and the new nose was added. Again, careful attention must be paid to correctly line all these parts up.

All the parts were fixed with superglue. When dry Squadron Signal's white filler was added to all the joints which were sanded when dry. The wings and tail fin were constructed and added, and



again cleaned up with filler and sanded. The new tail fin probe slot was also cut out and a 5mm plastic rod 1mm in diameter was superglued into place and cleaned up.

STAGE 4

The wing alterations were carried out next – cutting the kink into each side as per the drawings. A new fence was fitted, again as per the drawings and I made this from the Brass detail set. I had cast two new resin gun pods from some old white metal ones I had made as the kit ones are rather poor and these were fitted and blended in with filler.

Wing tip navigation lights were cut out and the fuselage top strobe light was cut off and a hole drilled for later use. I fitted the tail cone RWR and cleaned this up and also drilled a small hole on both sides for the rear lights. The fuselage also needed a few holes drilling out as per the Aeroguide

book reference and some of the new lumps and bumps around the front fuselage area were added from plastic card – again, reference to the drawings is advised.

STAGE 5

I decided to make the five upper intake doors in the open position as they would be on the real aircraft while at rest and these were cut out with a saw and a sharp knife. The parts were cleaned up with a small file and added to the kit and then blended in with filler.

After sanding, new plastic card intake doors were added and after they were dry were cleaned up with knife and file. The upper fuselage intake ducts were added, as were other small details to my own preference around the wing top grills. I also added the tailplanes, engine exhausts together with the exhaust shields and weapons pylons at this stage.

STAGE 6

Now I was nearly ready to give the model a final clean up and prime before painting could begin. First, a revised cockpit instrument hood was made from plastic card and filler. The new HUD from the brass detail set was fixed and when dry all painted matt black. New HUD lenses were made from thin clear plastic card and fixed with Humbrol Clear Fix.

The front windscreen was then fitted and blended in with Kristal Kleer. The seat was finally fixed into place and the rear canopy was detailed with plastic card bulkheads and rods. The undercarriage was constructed and set aside for fixing at a later time while the undercarriage bays were detailed and then painted white. The airbrake was also detailed and painted and the undercarriage doors added, together with most of the smaller aerals and vanes.

STAGE 7 PAINTING

The whole kit was cleaned up and washed in warm soapy water and then left to dry in a dust free environment. The kit was masked where necessary and then coated in grey acrylic primer and finally any areas that need further work was carried out.

Early Sea Harrier F/A.2s were finished in a Dark Sea Grey scheme but operational aircraft being issued to the squadrons are finished in BS.381C-637 Medium Sea Grey (Humbrol 165/Xtracolor X3) with dark grey nose cones. The fuel tanks and outer wing pylons are also dark grey and the RWR's have a buff/hemp tip – the tail probe is silver.

Most aerals are black and the engine intakes are white with a Medium Sea Grey ring; in 1:72nd scale this is about 3mm. The



other small markings coming from Xtradecal X006-72. The ESCI decal sheet was used for the standard markings and the pink lines over the wing box were hand painted. After all the decals had been completed the model was given a coat of semi-gloss varnish.

Last of all, I put the MV lenses on the fuselage top and under the fuselage just behind the airbrake and also tinted green and red Kristal Kleer to the wing tip navigation lights. Premier Plus clear lights were added to each side of the rear RWR.

FINISHED!

I enjoyed making this kit and look forward to either an F/A.2 kit being released by one of the major kit companies or the conversion set being manufactured by another company, as even with the change of name from Scalecast to Aerokit it is still difficult to obtain.

Hopefully the RN will eventually paint squadron markings on the fins of its fleet of Sea Harriers and then I will be able to up build a collection of this, one of my favourite aircraft. I obtained an MD Royal Navy deck tractor a couple of years ago and with the PP deck crew I shall finish it off by mounting it on a carrier base.

My thanks to Robert Fox of the Kit Bunker in Oxford and British Aerospace for helping with information on the F/A.2 and lastly to Phil Cater of the Harrier IPMS Special Interest Group.



undercarriage legs and wheel hubs are glossy light grey (I used Light Aircraft Grey) and the wheels were painted black and grey. I had bulged the wheels gently under heat and after painting these were added to the kit. Other small paint detailing was carried out after study of photographs.

The kit was then coated in Xtracolor Gloss varnish and left to dry.

STAGE 7 DECALS

All the current Royal Navy squadrons have F/A.2s on strength. At present these do not carry squadron markings with the exception of a few 899

NAS aircraft.

All aircraft have small pale blue/pink roundels on both sides of the fuselage and both sides of the top wing. All code numbers, Royal Navy titles and serial numbers are in white, while the pylon warning triangles are white and red.

The 899 NAS fist is in Dark Grey outline only, although some of the squadron's aircraft have been seen with grey OC U codes and some with white fin tips.

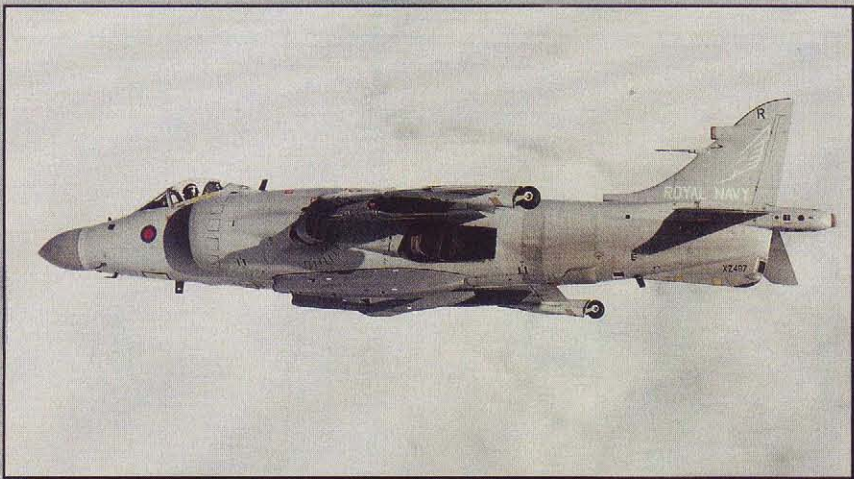
One aircraft (XZ439) was noted sporting a rather nice sharkmouth while on trials in America, together with other non-standard markings and this could make an interesting scheme (see *World Air Power Encyclopedia of Military Aircraft* Vol. 1, page 100).

Most of the decals came from Modeldecal sheets 48 and 67 with the roundels and some



Above Compare this Sea Harrier FR1 to the updated FR2 (right)





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- 97 RAF: Sabre F.4 selection 1954-56 3, 4, 26, 66, 67, 71, 92, 93, 112, 130 Sqn. (see also sets 14 and 37 to complete RAF Sabre sqn. coverage). Phantom miscellany with items for 31, 43, 92, 111 Sqn. Dutch Air Force NF-5A 314 Sqn. Klu 75th anniversary 'Double Dutch' aircraft as in 1988.
- 98 RAF: Tornado F.3 choice between 11 Sqn. (incl. ZE764/DH with black spine and fin) 23 Sqn. and TOEU, also F.2 of ETP S all as in 1988. Jaguar GR.1A 2 Sqn. 1988 in 76th anniversary scheme with black fin containing large squadron badge. Dutch Air Force F-16A 312 Sqn. Klu 75th anniversary scheme as at 1988 air displays.
- 99 Navy: Wessex HAS.1/3 selection. 1962-92, 706, 737, 771, 772, 814, 815, 819, 820, 826 Sqn. and various Ships flights. RAF: Chinook HC.1 ZA671/EO 7 Sqn. 1989 in special 75th anniversary scheme. Lightning F.1A/3/6 56 Sqn. 1961 and 1976, illustrating first and final squadron schemes.
- 100 RAF: Aux. AF: Vampire selection F.3/FB.5/9 1950-57, 6, 20, 32, 118, 185, 213, 249, 501, 601, 602, 603, 604, 608 Sqn. Harrier GR.5 1, 3 Sqn. 233 OCU plus SAOEU 1989. Belgian Air Force CF-100 11, 349, 350 Sqn. 1958-1963.
- 101 RAF: Aux. AF: Vampire selection F.3/FB.5/9 1949-56, 16, 26, 28, 54, 60, 71, 72, 73, 98, 247, 502, 605, 607, 612, 613, 614 Sqn. Phantom FG.1 XV582/M 111 Sqn. 1989... the black one. Tornado GR.1/F.3 updates 1988-90 2, 9, 13, 25, 43 Squadrons.
- 102 British WW2 roundels, large types A-A1. Type A diameters: 65, 84, 100 inch. Type A1 diameters: 63, 64, 66 1/2, 77, 84, 100 inch.
- 103 British WW2 roundels, large types B, C, C1. Type B diameters: 60, 64, 75, 77, 84, 100 inch. Type C diameters: 77, 84, 100 inch. Type C1 diameters: 50, 56 inch. Sets 102 and 103 together contain 52 roundels and are a continuation of the ranges of small and medium size roundels included in sets Nos. 39-42.
- 104 British military aircraft pre-war black and white outline serial letters and numerals 6, 8 inch. Also black 20 inch narrow style underwing type.
- 105 British military aircraft pre-war black serial letters and numerals 18, 20, 24 inch, in standard width styles.
- 106 British military aircraft pre-war black serial letters and numerals 30 inch, in both standard and narrow width styles.
- 107 British military aircraft pre-war 1918-1938 roundels. Diameters: 17 1/2, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 72 1/2, 80 inch. Total content 74.
- 108 RAF: Navy: Hawker 'Hart' variants, 1932-1939, Hart, Hart(T), Demon, Audax, Hind, Hardy and Osprey aircraft depicted from 22 units.
- 109 RAF: Gulf War selection: Buccaneer S.2Bs XX899/P Laser Lips Laura, XX885/L Hello Sailor/Caroline, XW547/R Guinness Girl/Pauline, Jaguar GR.1s, XX733/R Biggles/Pink Spitfire, XZ367/P Debbie, XZ356/N Mary Rose, Victor K.2s, XH671 Sweet Sue/Slinky Sue, XL164 Saucy Sal, Tornado GR.1s, ZA452/GK Gull Killer, ZD746/AB Alarm Belle, ZD748/AK Anola Kay, ZA491/N Nikki, ZD739/AC Armoured Charmer, ZD890/O Hello Kuwait: G Bye Iraq.
- 110 RAF: RN Gulf War selection: Buccaneer S.2Bs, XX895/G Jaws/Lynn, XV332 Dirty Harriet, Jaguar GR.1s, XX725/T Johnny Farpants XZ 358/W Diplomatic Service, Victor K.2 XM717 Lucky Lou, (also includes 55 Sqn. 75th anniversary marking). Tornado GR.1s, ZA465/FK Foxy Killer, ZA447/EA Mig Eater, ZD747/AL Anna Louise, ZD851/AJ Amanda Jane, ZD809/A Awesome Annie, ZD 847/CH 'Where do you want it?', Lynx HAS.3s, XZ230/335-CF HMS Cardiff, XZ720/410-CC HMS Gloucester.
- 112 RAF Coastal Command 1941 to early 1950s, light slate grey 48" high by 30" wide squadron codes letters for use with numerals on set 111.
- 113 RAF Coastal Command 1941 to early 1950s, light slate grey alphabets and numerals for 18,24,30" high squadron codes including 30" characters in both standard and thicker stroke styles.
- 115 RAF: Hawk T.1/1As, XX249 4 FTS, 70th Ann. Scheme 1991/2, XX289 63 Sqn. (black fin) 1991/2, XX219 19 (Res) Sqn. (med blue fin) Sept 1992, XX329/C 151 Sqn. (blue fin) 1991/2, XX230 63 Sqn./XX281 151 Sqn. both in overall black schemes, 1992, Harrier GR.7, 233 OCU/20 Sqn June 1992 Tornado F.3 ZE253/AC F.3 OCU/56 (Res) Sqn. July 1992, including current fin emblem for 5 Sqn. Jaguar GR.1As, XX965/07 16 (Res) Sqn. 226 OCU 1992, also as OCU display a/c 1991 early 1992, XX970/EH 6 Sqn 1992, XX766/EA or EC 6 Sqn. Display A/C 1989 and 1992. Phantom FGR 2s 1435 Flt. Falklands late 1991. Army Air Corps Lynx AH.7, XZ221/J 654 Sqn. Desert Storm 1991, and silver Eagles Team aircraft.
- 116 RAF: Hawk T.1/1As, XX163 4 FTS/CFS, Solo Hawk Display a/c 1992, XX318 234 Sqn./1 TWU 75th Ann. Scheme with large dragon on black fin 1992, XX284/CL 100 Sqn. 1991, XX280 79 Sqn./1 TWU 1990, XX350 234 Sqn./1 TWU 1991, XX303 79 Sqn./1 TWU 75th Ann. Scheme with black fin 1992, XX157/B 92(Res) Sqn. with blue fin Sept. 1992, XX255/TE 74(Res) Sqn. Sept. 1992, XX226 74 Sqn. all black display a/c Oct. 1992. Tornado F.3 ZG776/HN 111 Sqn. in 75th Ann. Scheme 1992, Ze342/HE 111 Sqn. in standard markings, GR.1A ZA372/E Sally T2 Sqn. Dhahran early 1991. Phantom FGR.2 XV408/Z 92 Sqn. all blue scheme as July 1991. Wessex HC.2 XR517/N 60 Sqn. July 1992 R. Navy Lynx HAS.3s a six a/c selection.
- 117 British WW2 roundels and fin flashes, South East Asia Command, Roundel diameters (standard): 16,32,48" Fin flash widths (standard): 16,22,34" Roundel diameters (non standard) 32,35,40,48,50,54,56,63,66,5". Fin flashes (non standard): 24,36". Content 80 Roundels and 40 Fin flashes.
- 118 WW2 British Pacific Fleet roundels and bars, plus white code letters and numerals; as used on FAA aircraft during 1945-6. (Two sheet set). Roundel diameters: 36, 54" - total 28. Codes heights: 12,18,24", total 370.

NOTE: To allow the maximum number of squadron options, many of our sets do not include roundels, fin flashing and serial numbering. The two former are intended to come from the relevant kits or MODELDECAL sets 54 and 107 and the latter from sets 33-35, 58-61, 104-106 all as appropriate. 'MODELDECAL' style fully illustrated sheet, giving decal locations, full colour scheme details and a selection of helpful photographs is also included with most sets.

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This title, from a new company, should be available from November of this year. It is the first publication from Classic Publications, but the names of those involved will tell you the quality of the product. They are: Eddie J. Creek, J. Richard Smith and Arthur L. Bentley.

To establish the degree of interest in this book and to create a mailing list for their use, the publishers would like

to hear from anyone who would be interested in it.

If you are interested, tell Classic Publications by writing to them at Quarry Ridge House, 7 Quarry Close, Burgess Hill, West Sussex RH15 0JT.

They in turn will keep you posted in regard to future publications.

Richard Franks

Postbag

ONES FOOT IN ONES MOUTH!!

As a reviewer with this magazine and a modeller for 20 years I am the first to recognise my failings. I must therefore put the record straight in regard to a few 'facts' which I have recently got wrong!

1. With reference to my review on the PP Aerokits rockets and bomb set (*Scale Aviation Modeller* Vol.1 No.5, page 230). I state that PP have got it wrong and that the rocket heads should be black, as I had no information on grey ones. Thanks to Steve Moores I am now corrected, as these grey heads are in fact concrete and quite correct. My thanks to Steve for putting me right and my apologies to Tim Perry of PP Aerokits for saying he was wrong.

2. In my Multi-Media Experience (Vol.1 No.5 pages 234-237) I said that to anneal brass it should be heated until it was red hot. NOT SO – if you do this you will lose some of the etched detail. The piece should be heated until it takes

on an overall colour hue (you will know what this looks like once you tried it), then purge it in cold water. My thanks once again to Steve for putting my right there.

3. In my first installment of the Multi-Media Experience (Vol.1 No.4). The listing of resin manufacturers was wrong for Magna Models: their address is Magna Models, 4 Brian Close, Sandford, Wareham, Dorset BH20 7BJ. Telephone (01929) 553618.

I also neglected to include PP Aerokits' telephone and Fax numbers, which I am informed is the most common source for their orders. These are telephone (0117) 9445721, fax (0117) 9445973. Apologies to Tim Perry and Martin Gomm.

Now onto two points which are not errors, but additions. The first concerns Airfield Accessories and my review on page 227 of Vol.1 No.5. The address given is now incorrect as the man behind the company has recently moved. The new address is Airfield Accessories, 28 Clarence Road, Capel-Le-Ferne, near Folkestone, Kent CT18 7LW. 24hr telephone

(01303) 246331.

He also informed me that he now accepts Visa and MasterCard for mail order.

The final point is an additional company name to my resin manufacturers list in the first part of the Multi-Media Experience. This company is called ART and they come from the Czech Republic. They make some excellent 1:48th scale resin and brass ejector seats already (two per set at £5.95) and they have just released an exquisite Wildcat update set in 1:48th scale complete with resin engine, lots of brass and six decal options no less. All of these products can be obtained from Four Plus (UK) so give Stan a ring on (01702) 559308 for more details.

Richard Franks
Bedford

CLEARING UP A QUERY

I recently heard at my local IPMS model club meeting that Concept Publishing and myself had been mentioned at the IPMS Annual General Meeting.

This took the form that anybody who writes for or contributes articles to Concept Publications and *Scale Aviation Modeller* is barred from writing from any other publication.

After checking back with the IPMS Editor, it is clear that members have got hold of the wrong end of the stick, as the

question was raised but no clear answer given.

As such I think it is only fair that both Concept Publishing/*Scale Aviation Modeller* and myself clear this matter up. As far as we are concerned there is no restriction on any contributor from writing for any other publication on any subject. Professionally speaking, I would not prepare an article or review and then give it to more than one publication, although articles can be expanded and changed with new information and be sent to another publication at a later date.

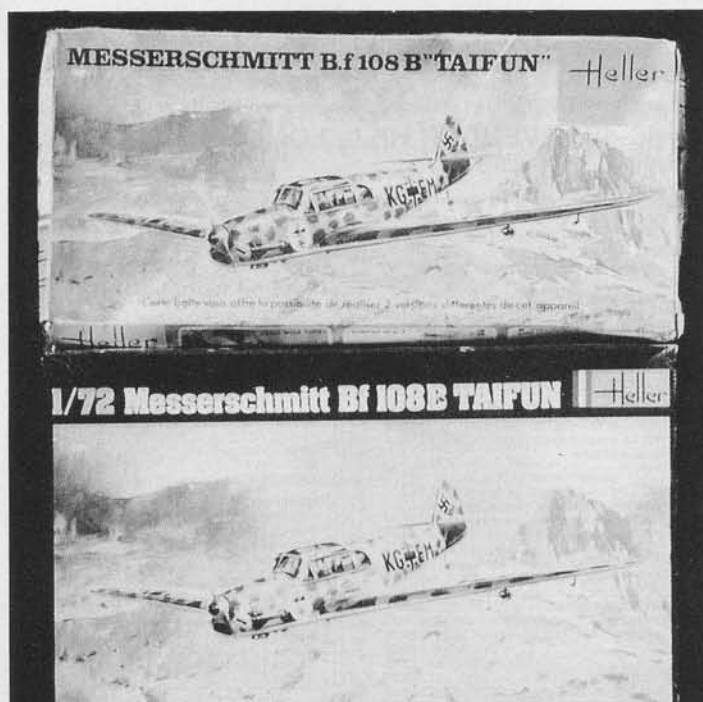
As a modeller first and foremost, article preparation, no matter for whom, is a matter of expanding my experience and getting paid for what I enjoy.

I would suggest that other modellers bear this in mind and leave the dirty tricks and mud slinging to politicians – it has no place in modelling or in IPMS, with which I am proud to be associated.

Gary Madgwick
Wantage

Bf 108 BOX ART

The technical gremlins managed to surface in the midst of my article on the Messerschmitt Bf 108 (*Scale Aviation Modeller* April 1995) and created some confusion with the caption to the lower photograph on page 187 relating to box lids and



artwork of the Heller Bf 108 kit box. My original text pointed out that the two boxes illustrated in that photograph show respectively the most recent packaging of the Heller kit (on the right of the picture on page 187), together with the box of one of the previous releases (but not necessarily the first release) of this kit, as shown on the left of the photograph.

To fill in some remaining details, the Heller kit of the Bf 108 has actually been released and re-released approximately four times in Britain. It was originally on sale in the 1970s in a rather flimsy cardboard box, which featured a painting of a Bf 108 in flight carrying the markings of an aircraft as included on the kit's decal sheet. When later re-released, the kit appeared in a more sturdy cardboard box which bore the same painting, but the picture this time was nearly enclosed in a black border. A number of Heller kits were re-issued at that time with this sturdy black-bordered packaging, and these boxes are apparently becoming somewhat collectable nowadays in their own right.

Some time after this, the Bf 108 kit was again re-released and on that occasion it appeared in the box as illustrated in my article on the left of the photograph of page 187. Without doubt this box was by far the worst of the

packaging that the kit has appeared in, and it carried on the box-lid a photograph of the actual model rather badly made-up and standing on a multi-coloured background. This re-issue was then followed several years later by the most recent re-appearance of the kit, which in complete contrast has an attractive painting on the box-lid of a Bf 108 on the ground carrying the markings which are supplied as one of the options on the kit's decal sheet. This box top was illustrated in my article on the right of the lower photograph on page 187.

The photograph enclosed with this letter shows the two earliest box lids of the Bf 108 kit as available in Britain, including the black-bordered type box.

As a footnote to this story, it will be noted that the foregoing notes apply to the releases and re-releases in Britain of the Heller Bf 108 kit. Perhaps not surprisingly, the model has also been the subject of releases and re-releases in other parts of Europe, two of the more important special appearances of this kit elsewhere being in Sweden and (West) Germany, for which different markings and, it is believed, different packaging altogether was used.

Malcolm V. Lowe
Valognes, France

T-45 GLITCHES

Sorry for a few glitches in the editorial of my article last month on modelling the Italeri T-45A Goshawk. First the price of the kit should be £3.25 and not £8.25, and secondly Training Wing 2's tail code is 'B' and not 'BJ'.

I am setting up an IPMS Gulf War Special Interest Group. Would any IPMS members interested in joining contact me at my address below.

Gary Madgwick
The Aviation Workshop
9 Hedgemill Road
East Challow
Wantage
Oxon OX12 9SD
Telephone: 01235 769746

SEA FURY GREY

Further to Dave Burlison's letter in *Scale Aviation Modeller* May 1995, I have some notes to add to his comments.

Far be it for me to stir matters up, but let's take a look at the 'official' references for the mid-1950s. The matter of actual colours is always a

difficult one, and in spite of much official documentation, even the Ministry can get things wrong at times.

For example, in calling up DTD 772 materials, they quoted Dark Sea Grey as being the required colour under Stores Ref. No. 33B/9428789. Now without having access to the reference numbers list the reader would not know that that particular number was in fact... Extra Dark Sea Grey!

Either way, Service personnel would query the situation and in consulting both the Air Diagram and AP 2656A, Vol. 1 *External and Internal Finish of Aircraft*, would find the answer as given on FS/6, Section 6, Chapter 1, the relevant page of which is printed below.

I hope this helps matters!

Ian D Huntley
Stoke Poges

Scale Aviation Modeller welcomes letters from readers on any subject to do with modelling. Write to the editorial address on page 283 of this issue and mark your letter 'for publication'.

A.P. 2656A, Vol. 1, Sect. 6, Chap. 1 (A.L.72)

(2) Those operated by the Army are to be painted in the colours appropriate to A.O.P. aircraft.

(3) Main rotor blades are to be painted as follows:—
UPPER SURFACES. Medium sea grey except on aircraft operated by the Army, which should be dark green.
UNDER SURFACES. Matt black.
BLADE TIPS. Yellow.
HUB AND ANCHILLARY PARTS. Unpainted.

(4) Tail rotor blades are to be painted as follows:—
First six inches from the tip. Red.
Next six inches. White.
Next six inches. Blue.
First six inches from the centre. Red.
Remainder of blade. Black.

Search and rescue aircraft

37. Aircraft, excluding helicopters, normally employed for search and rescue over the sea, should be finished as described in para. 20.

38. Aircraft, excluding helicopters, normally employed for search and rescue over land should be finished in the same way as air observation post aircraft (para. 35).

Military gliders

39. Military gliders at operational and training Units should be coloured as follows:—
(1) UPPER SURFACES:—
(a) UNSHADED AREAS. Dark green.
(b) SHADED AREAS. Dark earth.
(2) UNDER SURFACES. Black.
(3) BOUNDARY BETWEEN UPPER AND UNDER SURFACES. Pattern No. 2.

Light gliders

40. Light gliders should have the silver and yellow scheme used for training aircraft (para. 23 and 24).

Naval aircraft

High ground attack aircraft

41. All high ground attack aircraft should have a high-speed finish in the following colours:—
(1) UPPER SURFACES:—
(a) UNSHADED AREAS. Dark green.
(b) SHADED AREAS. Dark sea grey.
(2) UNDER SURFACES. Matt black.
(3) BOUNDARY BETWEEN UPPER AND UNDER SURFACES. Inside elevation, the boundary is to follow to the centre line of the fuselage, but it is to be curved upwards or downwards to meet the leading and trailing edges of the mainplane and tailplane roots.

Operational aircraft

42. All Naval operational aircraft, except those specified in the following paragraphs, should be painted as follows:—
(1) UPPER SURFACES. Extra dark sea grey.
(2) UNDER SURFACES. Sky.
(3) BOUNDARY BETWEEN UPPER AND UNDER SURFACES. Pattern No. 2.

Training aircraft

43. Training aircraft should be finished as described in para. 23 and 24.

Target-towing aircraft

44. Target-towing aircraft should be finished as described in para. 32.

Communications aircraft

45. Communications aircraft should have a silver finish of a type approved by the Admiralty.

FS/6
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(A.L.72 Mar. 56)



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FORTHCOMING MODELLING EVENTS

Scale Aviation Modeller will advertise forthcoming events in this column free of charge for event organisers who wish us to give advance notice of their shows. Write to the editorial address given on page 283. We'll continue to run your notice until the event is held.

Modellers in East Anglia (and further afield) should make a note of the **Norfolk Aviation Society's** annual Model Aircraft Exhibition at the Copeman Centre, Briston (near Melton Constable) on Sunday 21st May. The event is open from 10am to 5pm and will also include sales stands and refreshments - admission is 50p to cover the cost of hiring the centre. For further details contact NAS at 35 Rosebery Road, Suffield Park, Cromer, Norfolk NR27 0BX or telephone Merv on 01263 511257 evenings between 6 and 8pm.

IPMS Tyneside's **Northern Model Show** will be taking place in the Temple Park Centre in South Shields on 3rd and 4th June, a new venue for this established event. There will be competitions galore and the show is open from 10am until 5pm on each day. For further information please contact Paul Williams, 78 Hollywell Road, North Shields, Tyne and Wear NE29 7NQ or Rob Sullivan, 7 West Avenue, Rowlands Gill, Tyne and Wear NE39 1EB.

Ramsgate Model Spectacular will be held at the Jackey Bakers Sportsground on 24th and 25th June 1995. The emphasis is on model flying but there will be a whole host of modelling and pastimes on display. For further details contact Dave or Sheila on 01843 841691 or (Mobile) 0831 546671.

Following the success of its one-day 1994 exhibition and competition, the **North East Modelling Society** will hold its first two-day show on the weekend of 29 and 30th July 1995 at the Borough Hall,

Hartlepool. Further details on the show can be obtained from the Secretary at 6 Jude Place, Peterlee, Co Durham SR8 5JW. Telephone number is 0191 586 7139.

IPMS Avon Branch are pleased to announce their sixth annual model show and competition at the Pavillion, North Parade in the fine city of Bath on 19th August. For further details, please contact Steve Larkin on 0117 9245850

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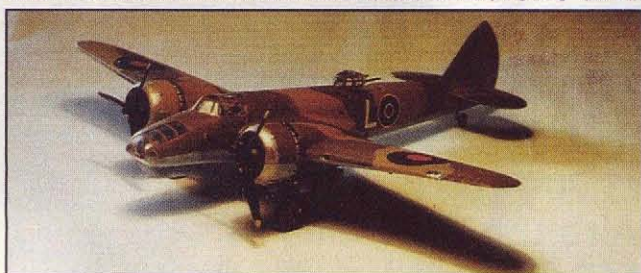
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